

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Adrian P. Wise

§

§ Application No.: Not Yet Known

§

Filed: February 5, 2001

§

§ Art Unit: 2783 (anticipated)

§

For: MULTISTANDARD VIDEO
DECODER AND DECOMPRESSION
SYSTEM FOR PROCESSING

§

§ Examiner: Follansbee, J. (anticipated)

§

ENCODED BIT STREAMS INCLUDING
PIEPLINE PROCESSING AND
METHODS RELATING THERETO

§

§ Attorney Docket No.:
94100419(EP)USC1X1C1D8 PDDD

§

§

COMMUNICATION - SUBMISSION OF FORMAL DRAWINGS

BOX PATENT APPLICATION

Assistant Commissioner of Patents

Washington DC 20231

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Sir:

Transmitted herewith are 169 formal drawings on 124 sheets.

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Respectfully submitted,

DISCOVISION ASSOCIATES



Richard Stokey
Reg. No. 40,383

Date: 2/5/01

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RS:sd

09746260

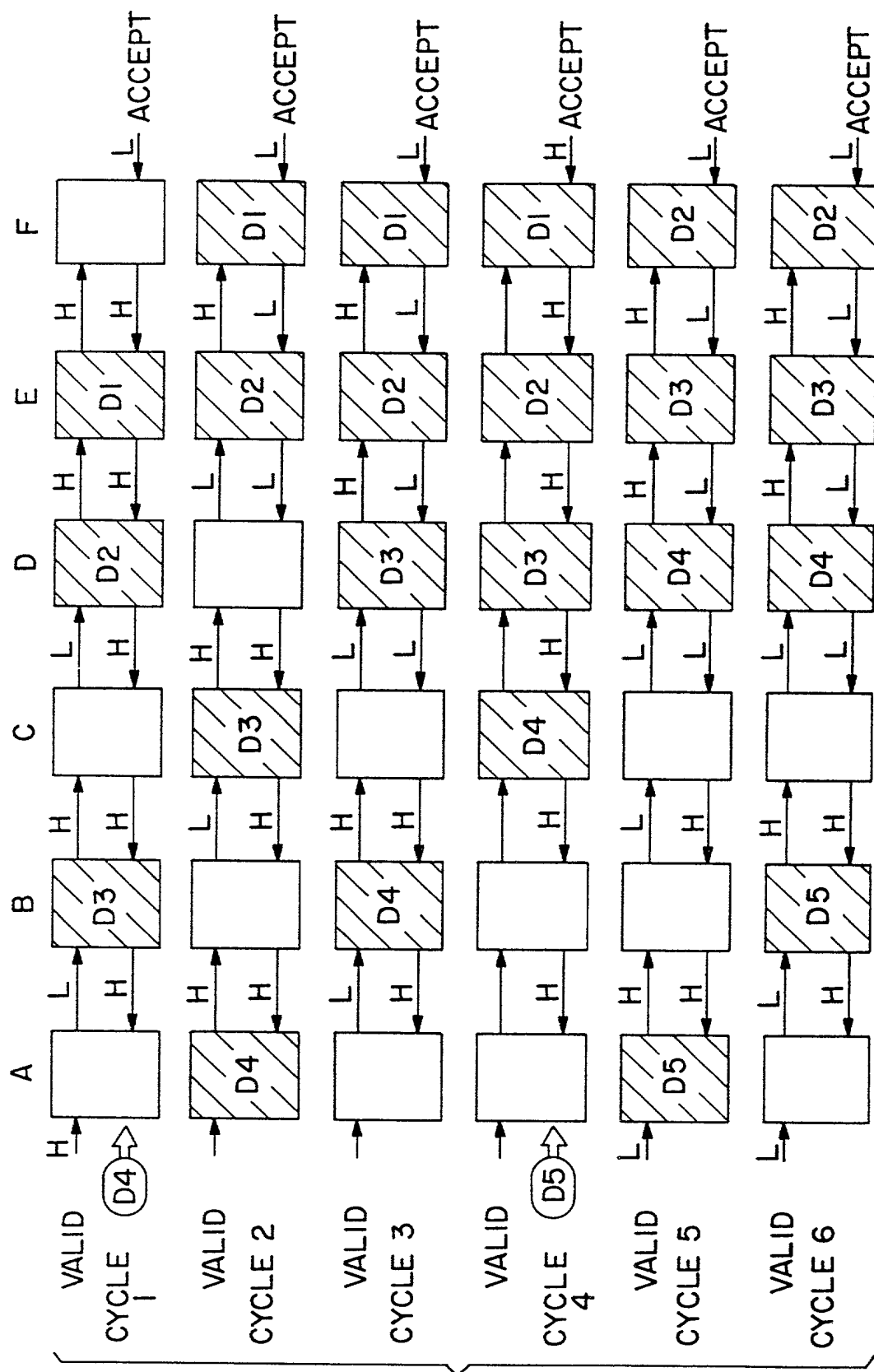


FIG.1

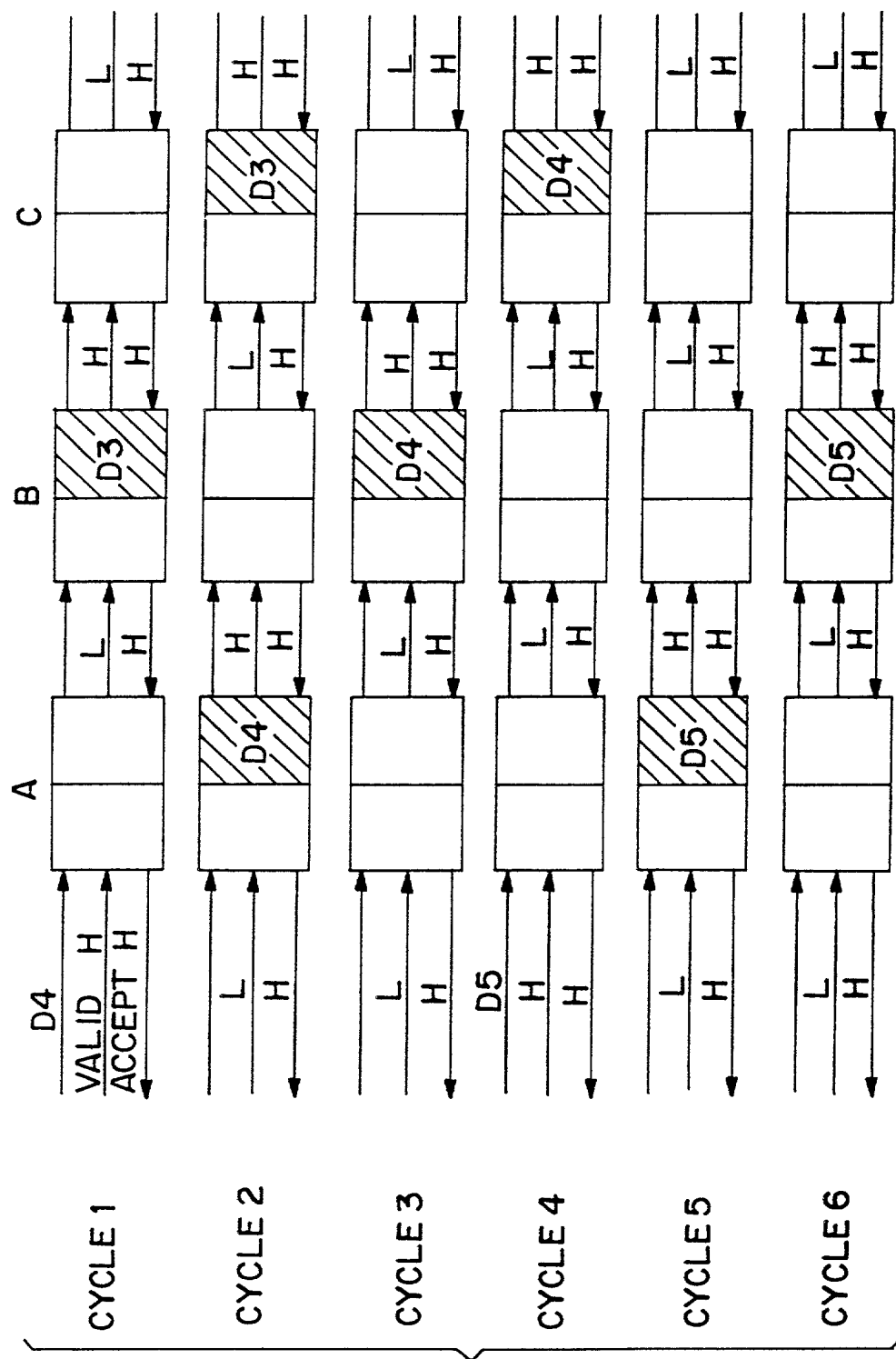


FIG. 2(A)

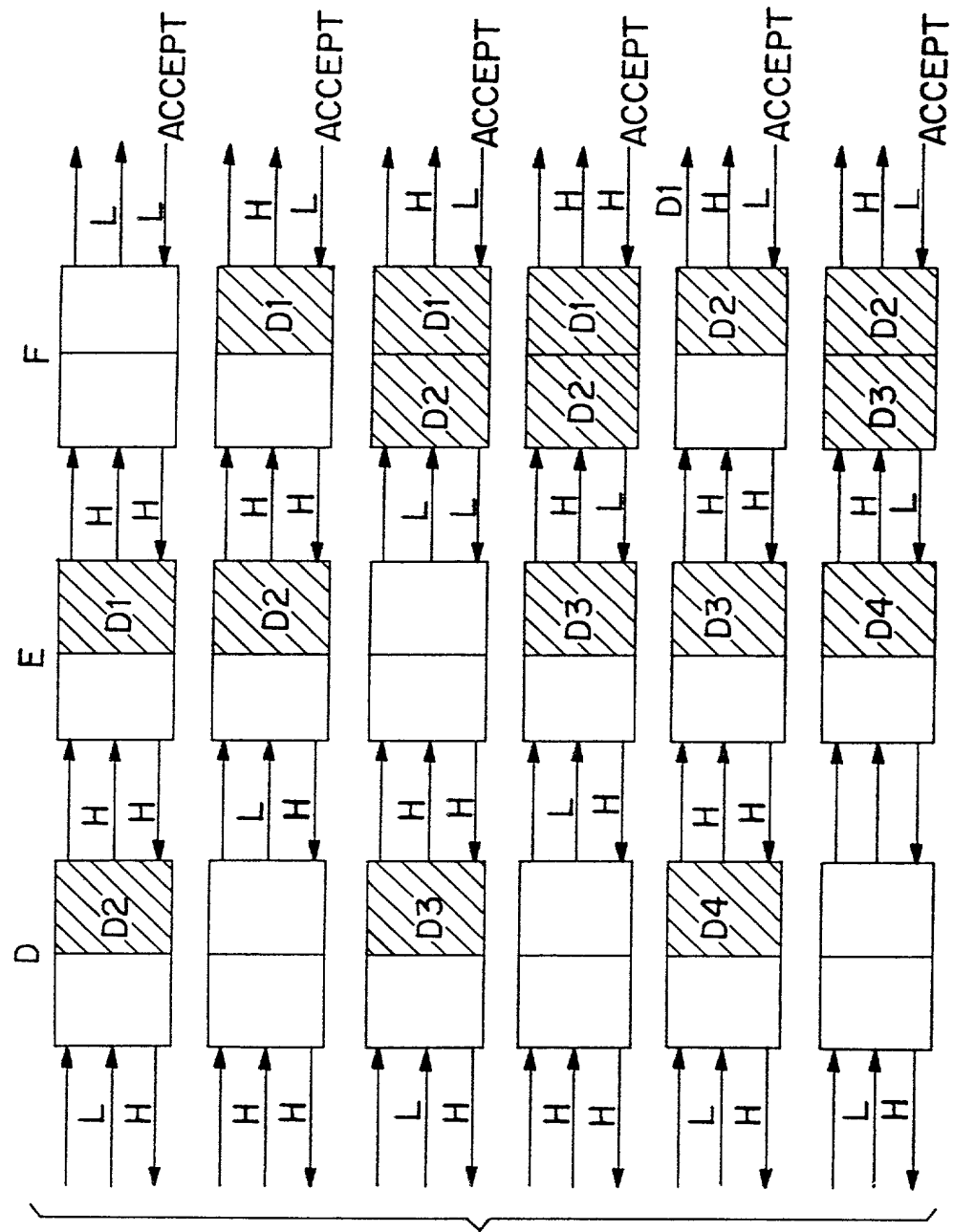


FIG. 2(B)

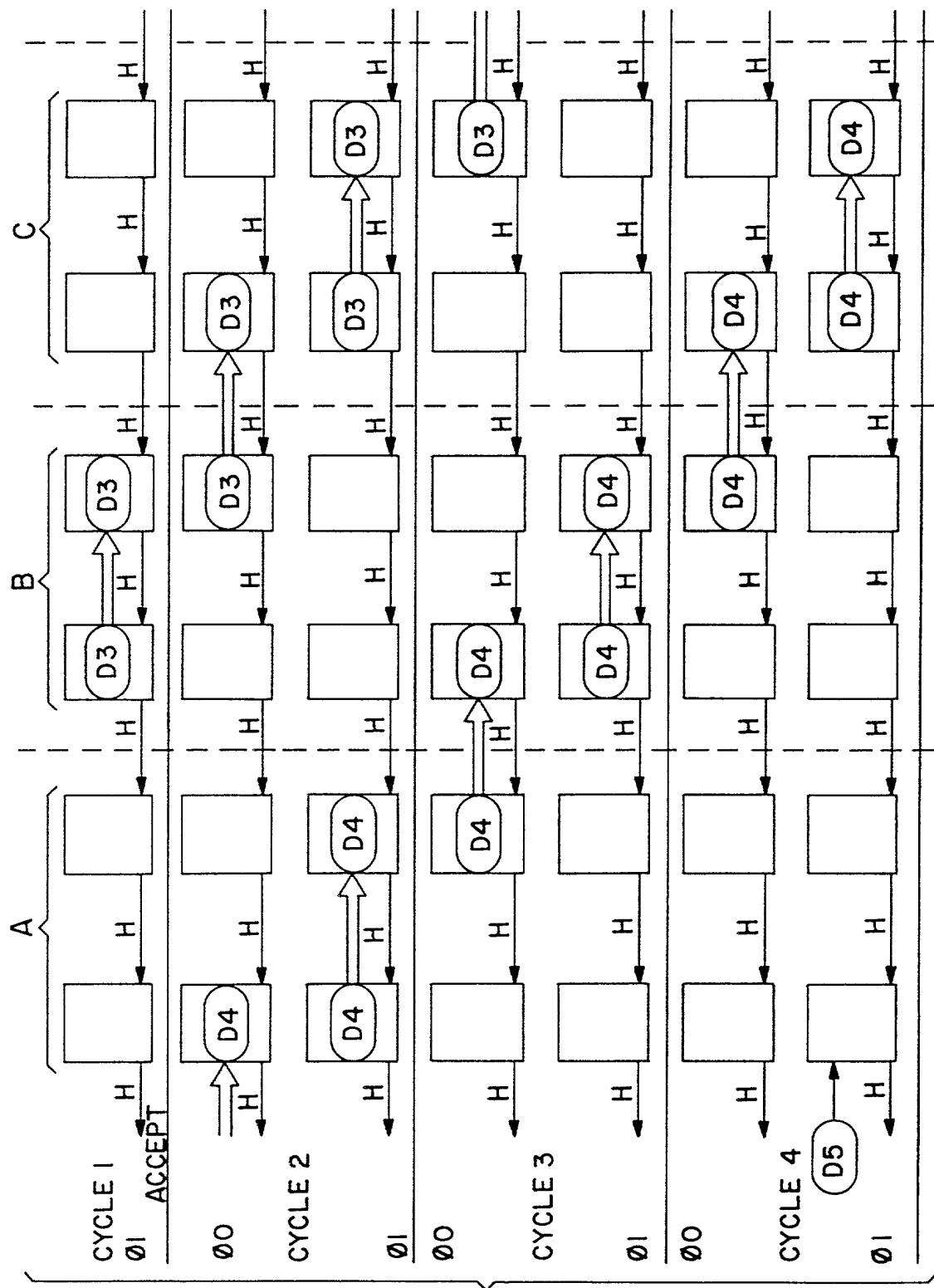


FIG. 3A-1

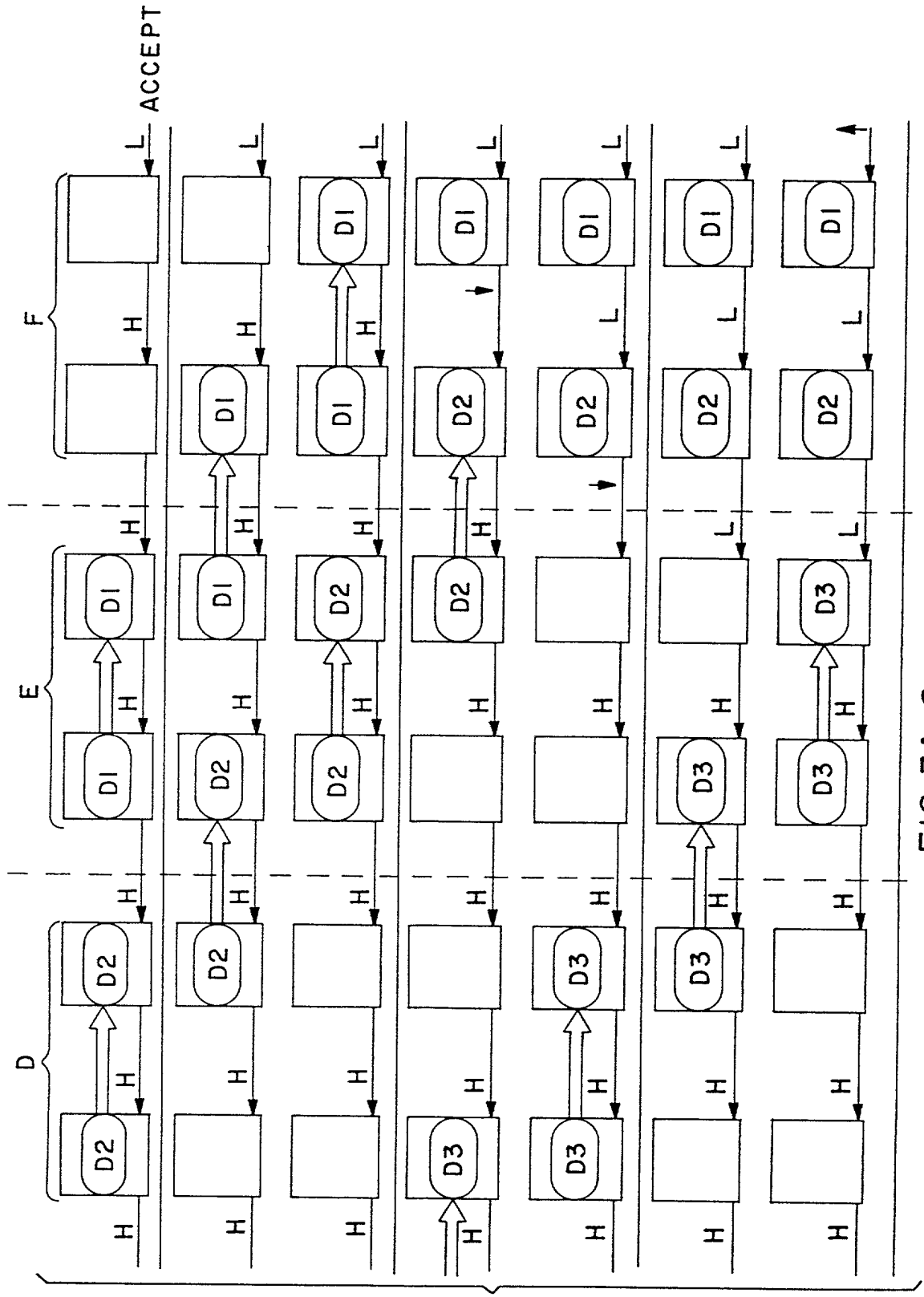


FIG. 3A-2

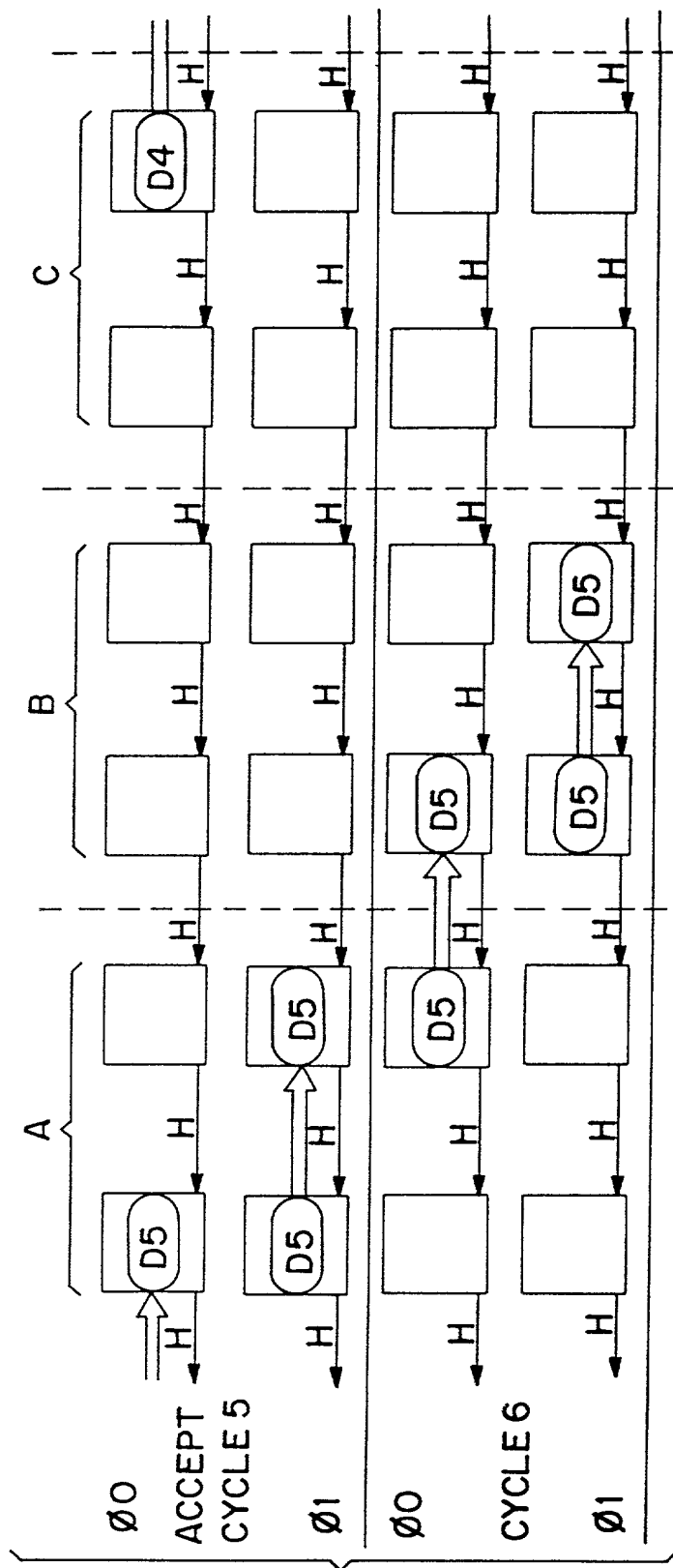


FIG. 3B-1

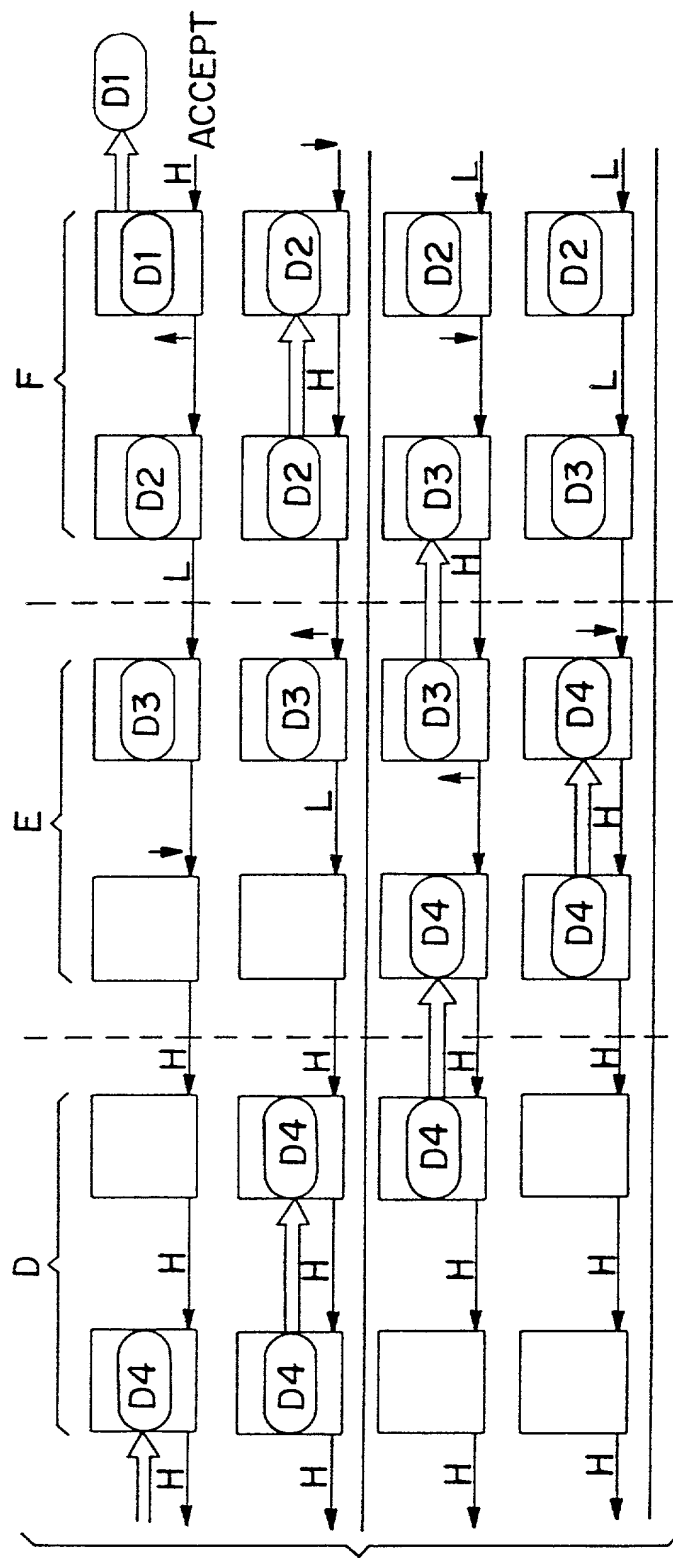


FIG. 3B-2

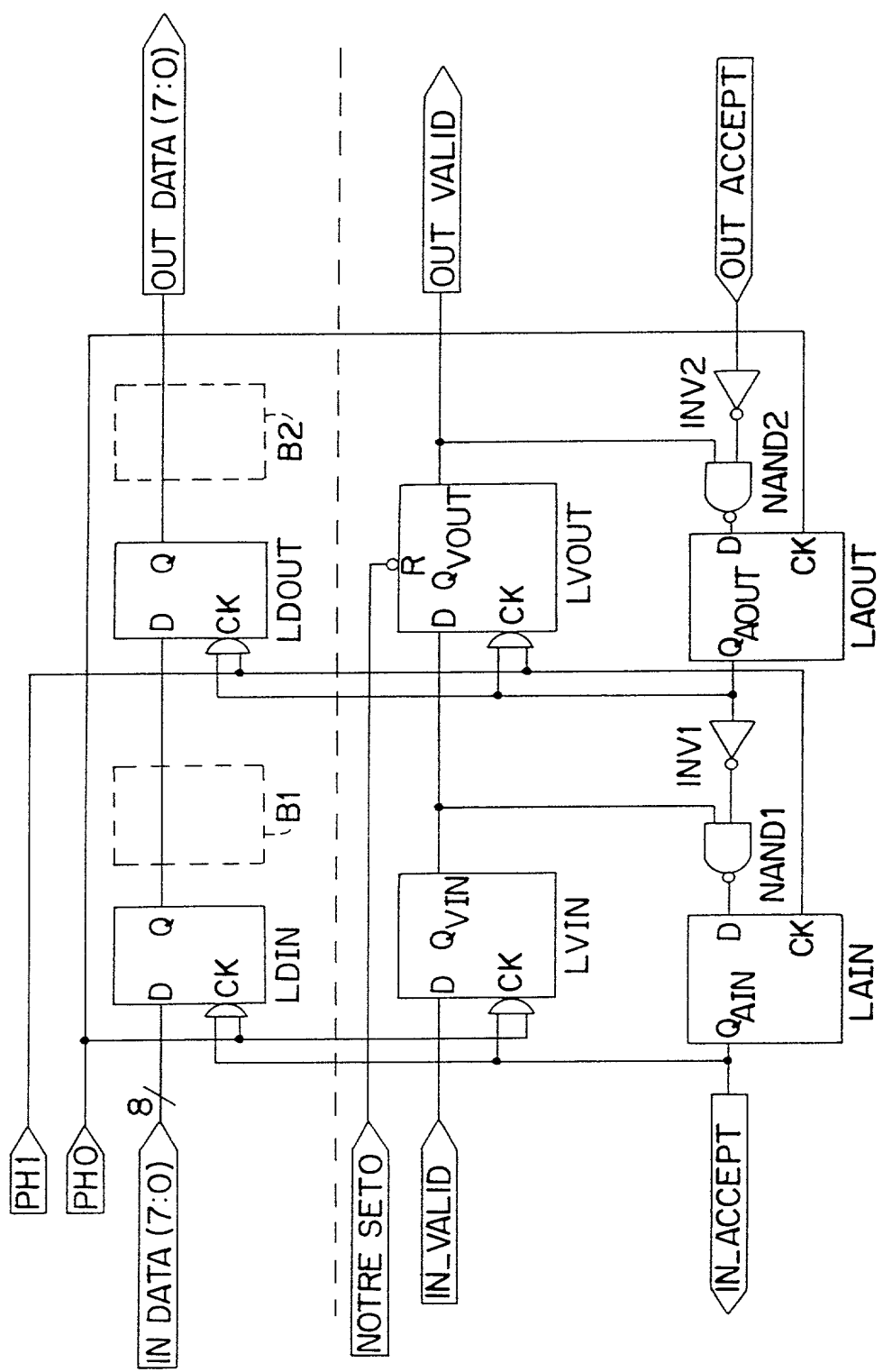


FIG. 4

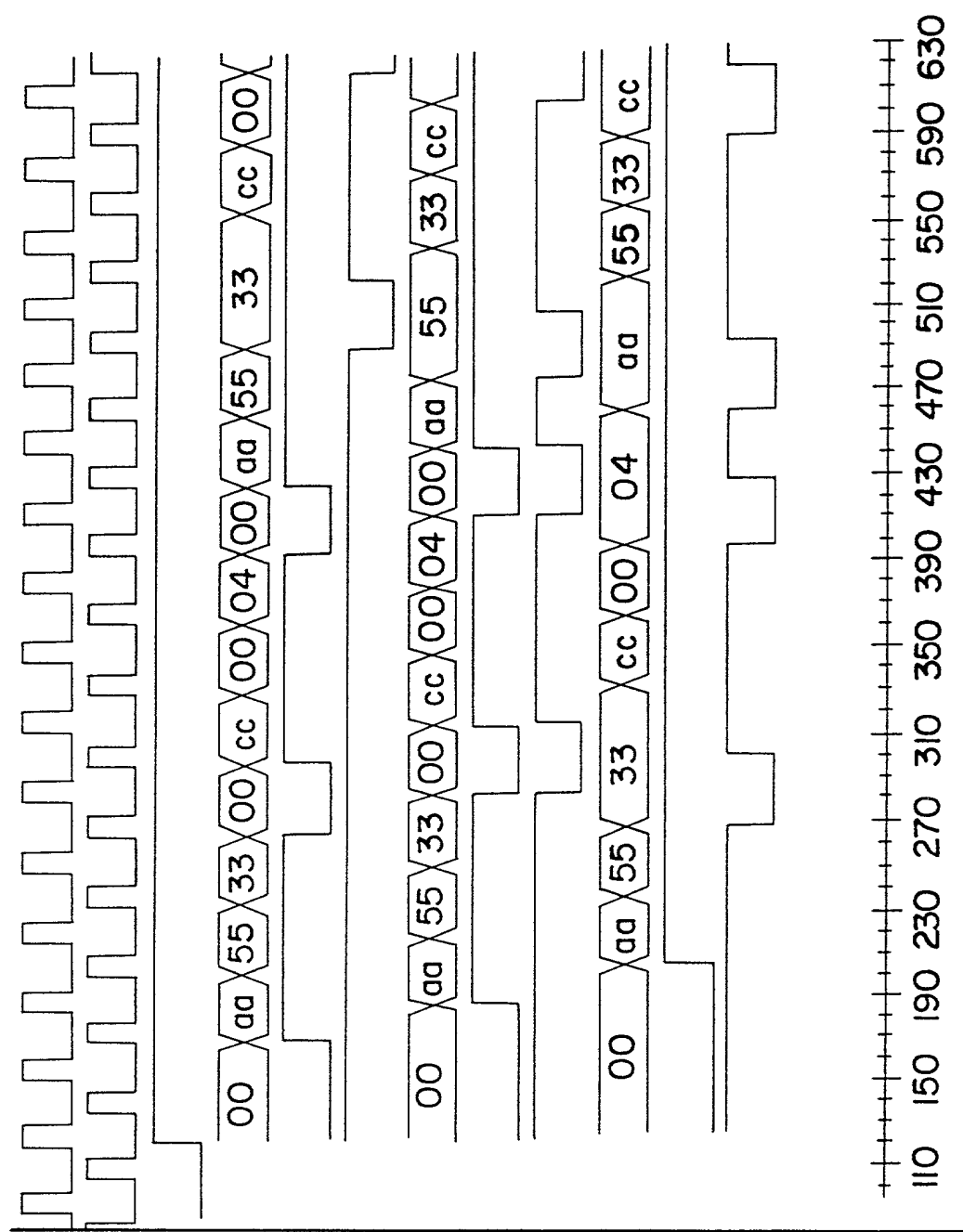


FIG. 5(A)

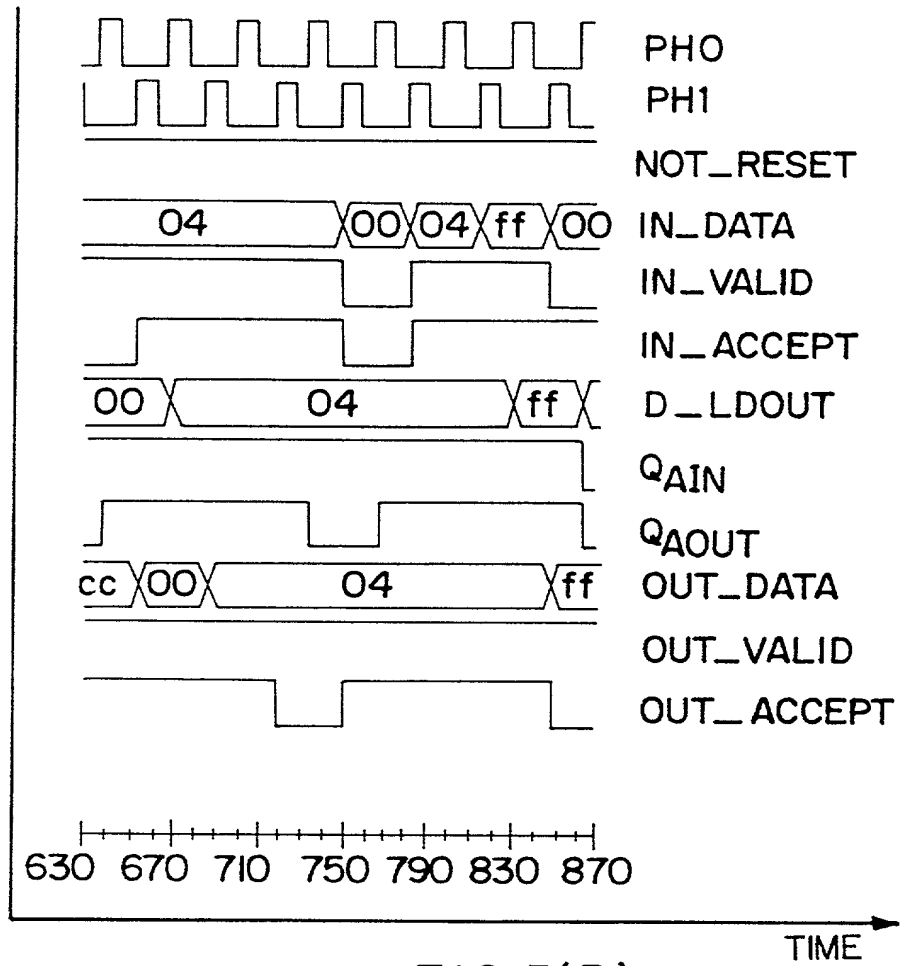


FIG. 5(B)

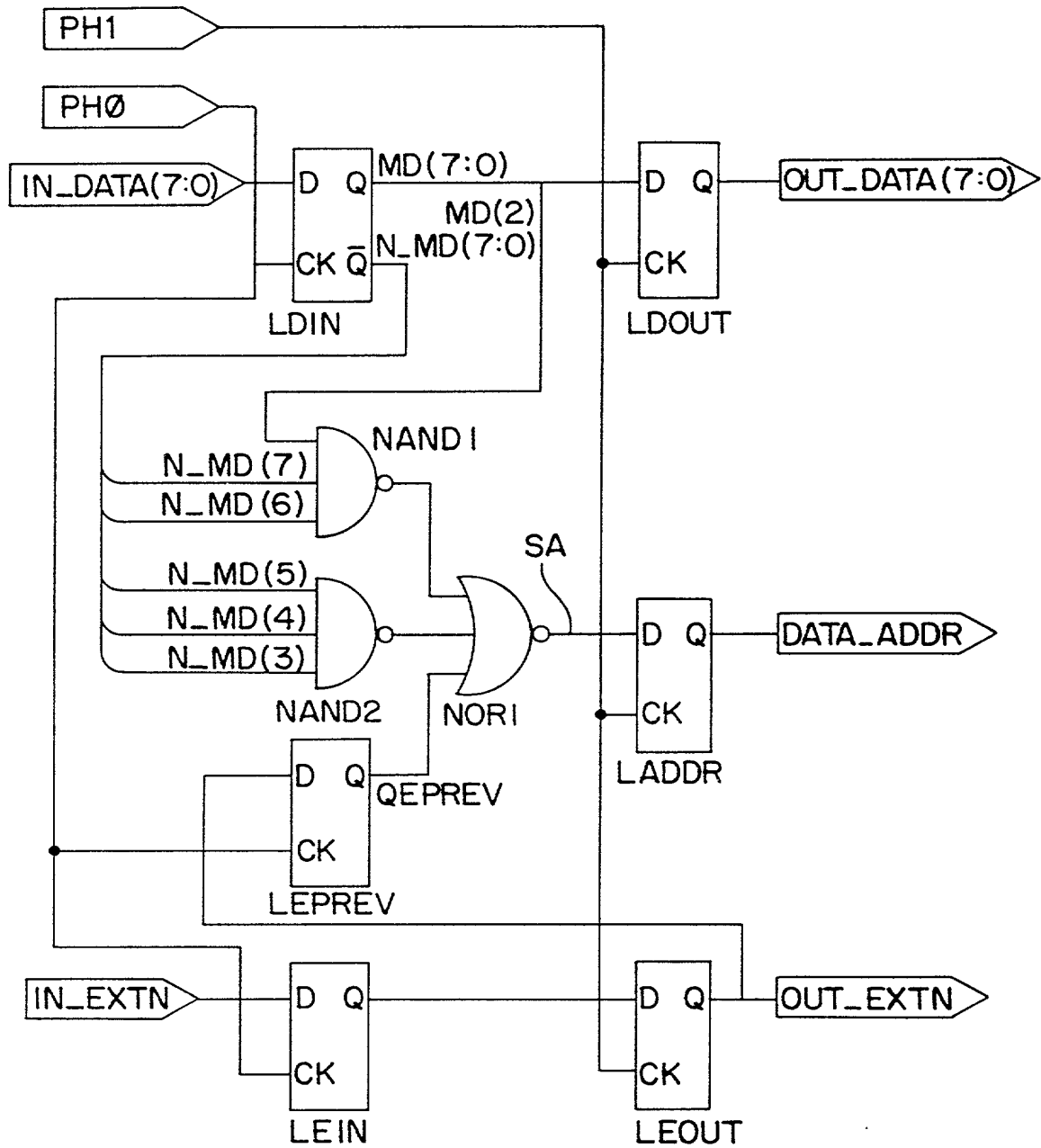


FIG. 6

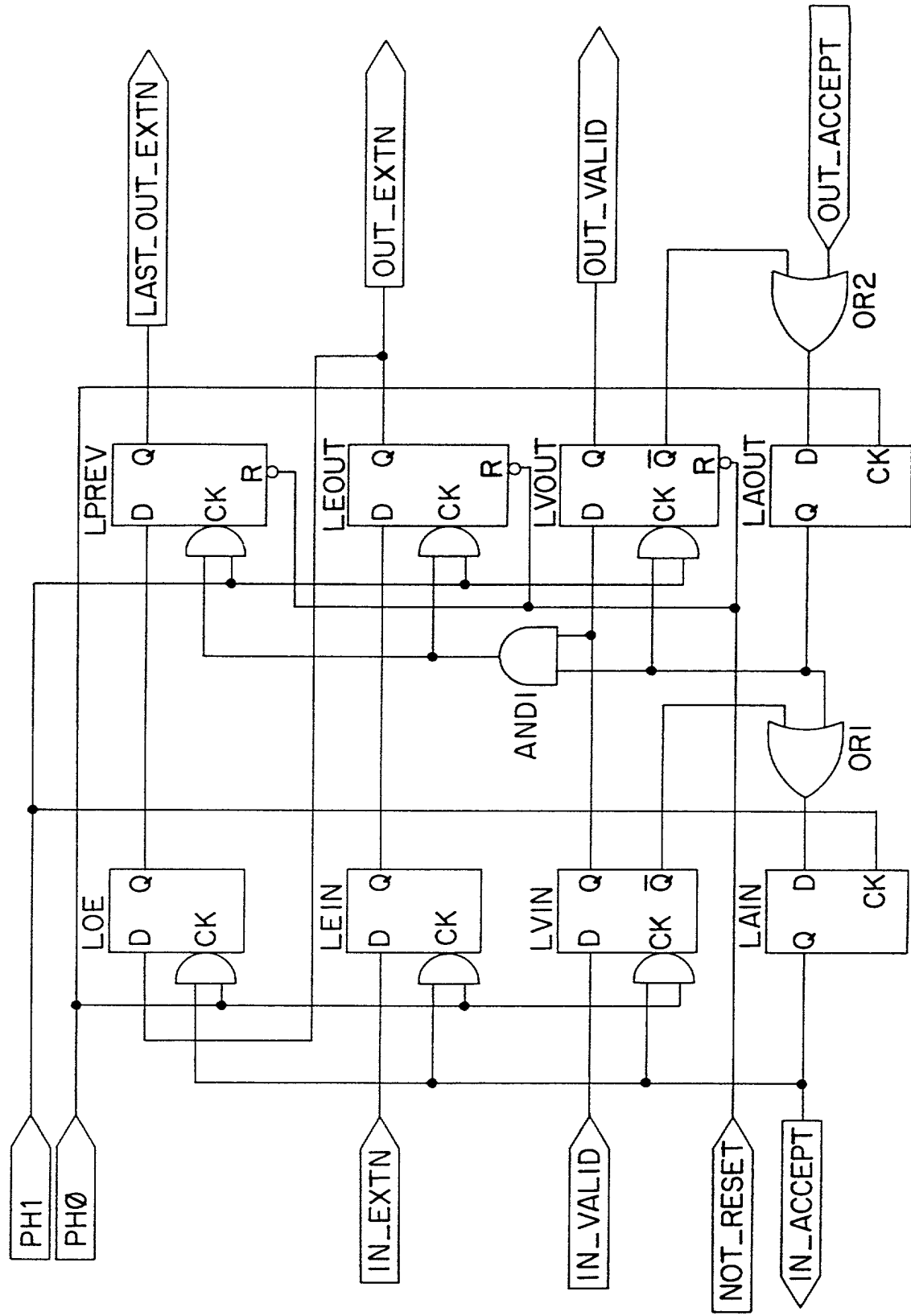


FIG. 7

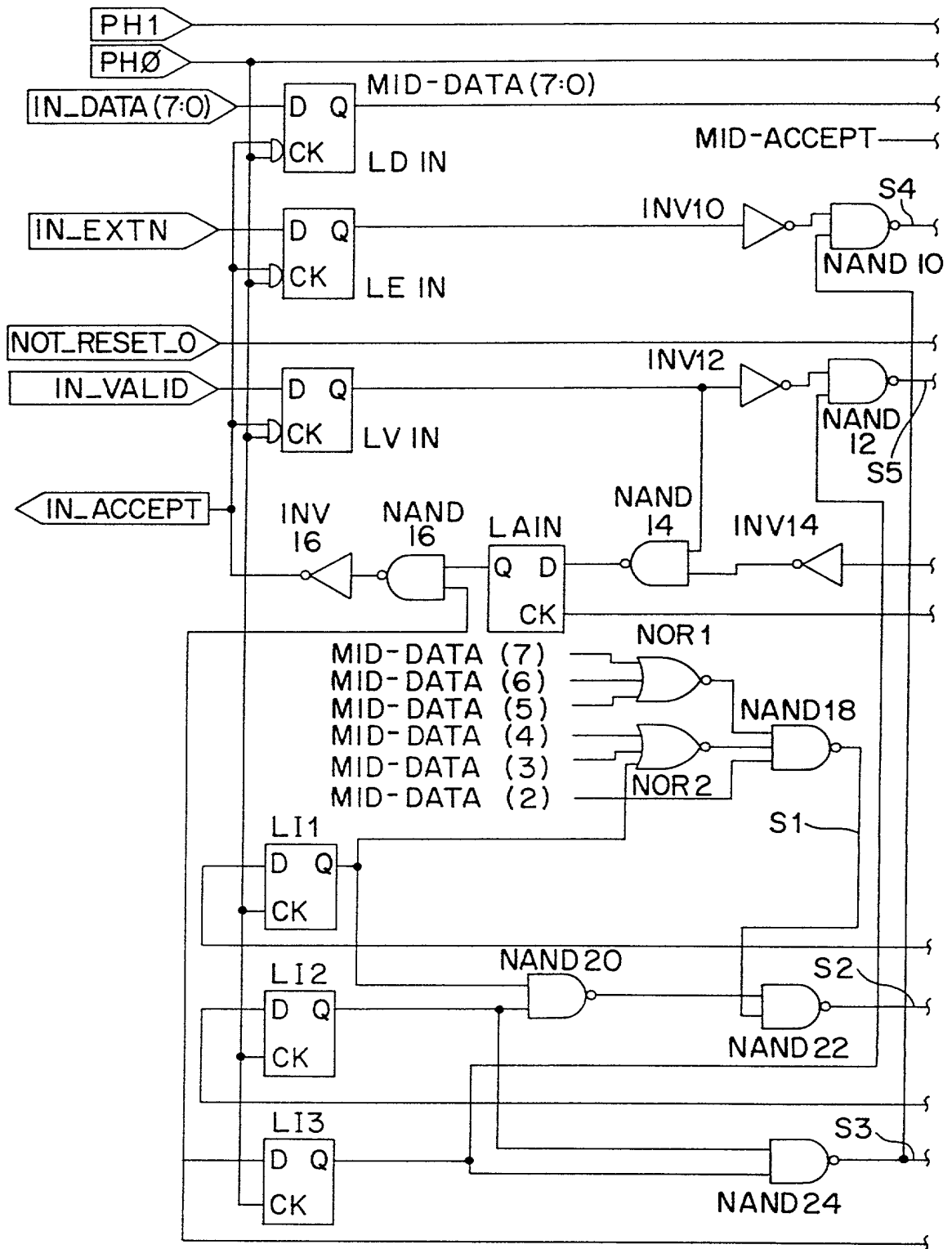


FIG. 8(A)

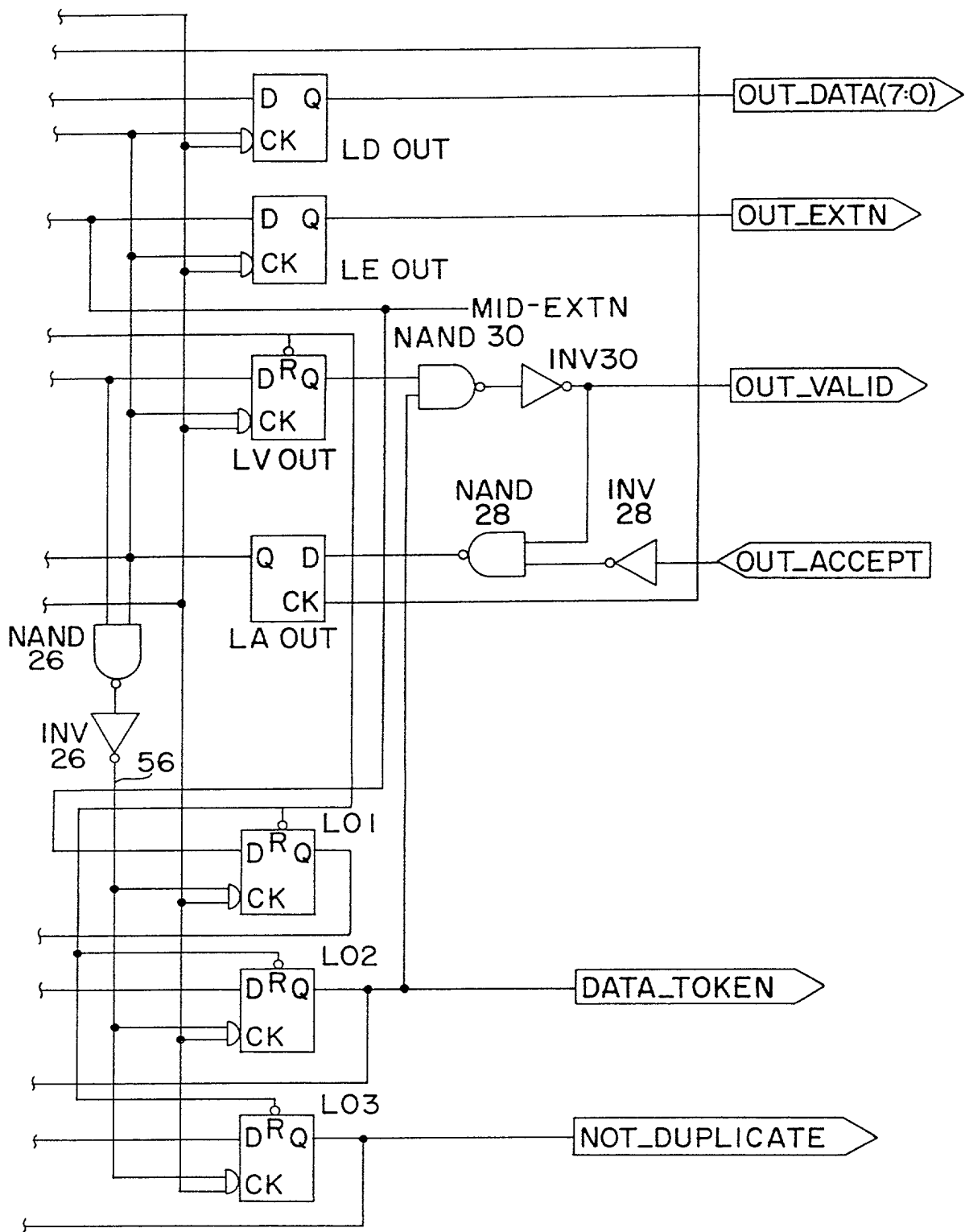


FIG. 8(B)

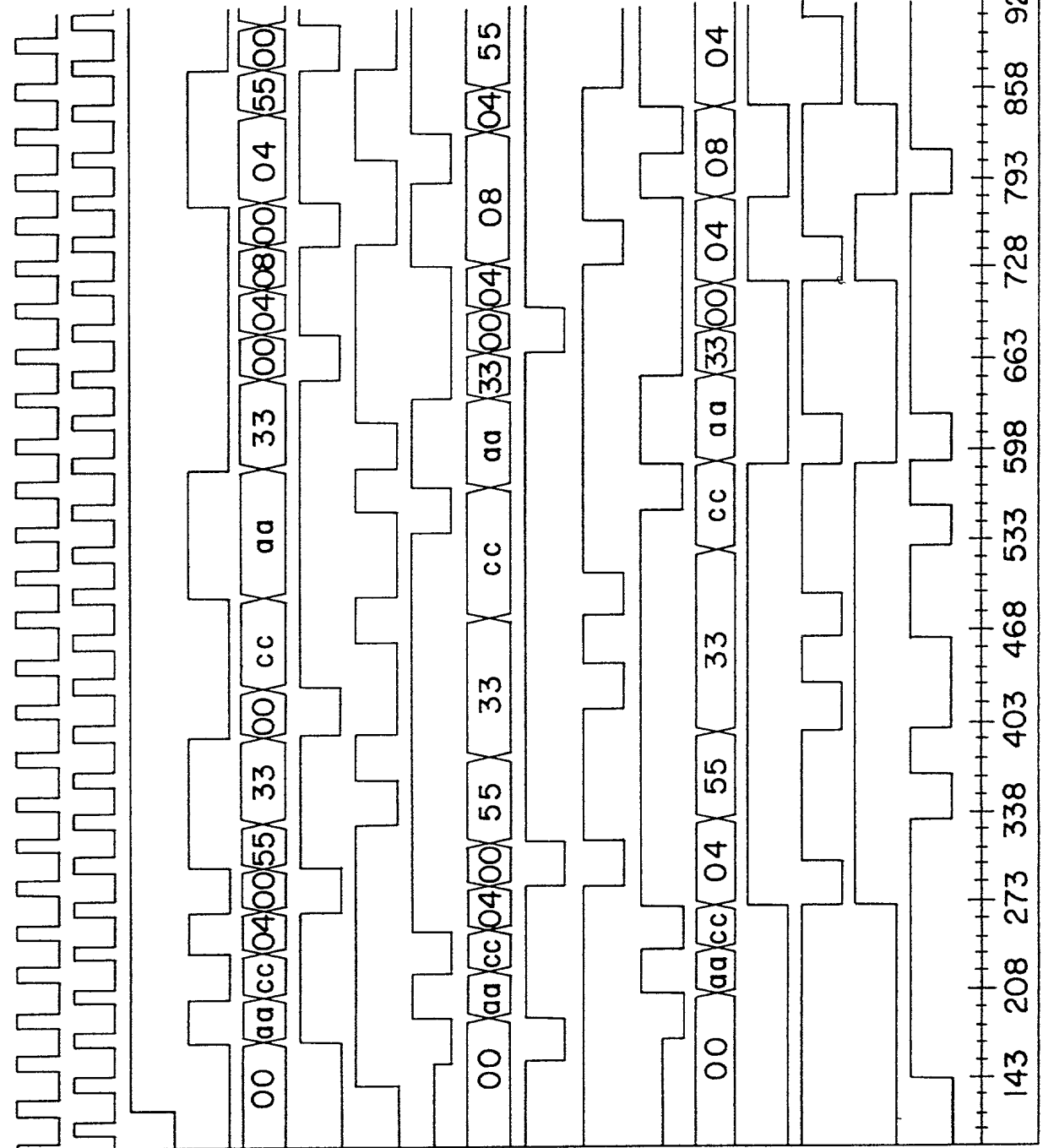


FIG. 9(A)

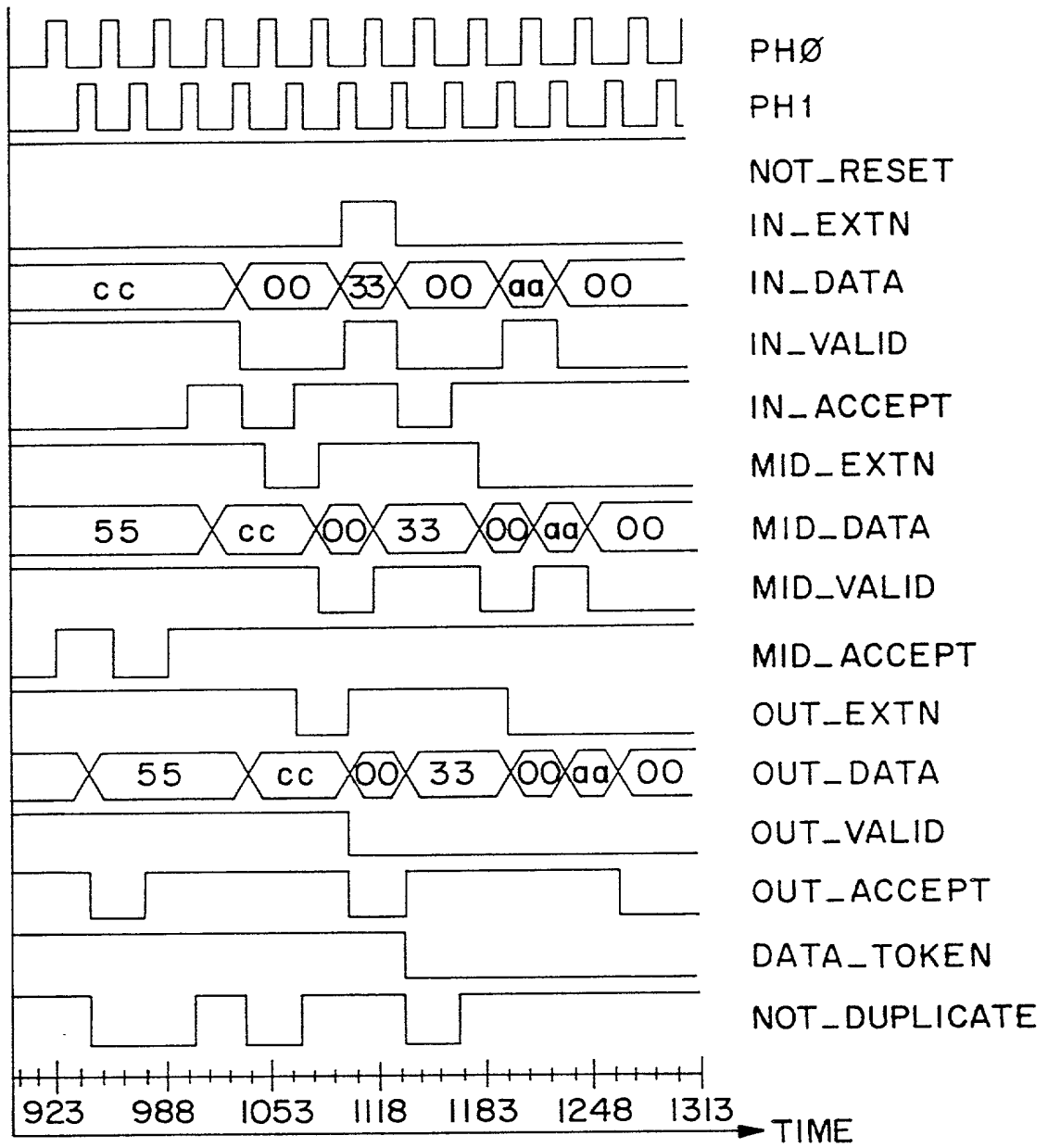


FIG. 9(B)

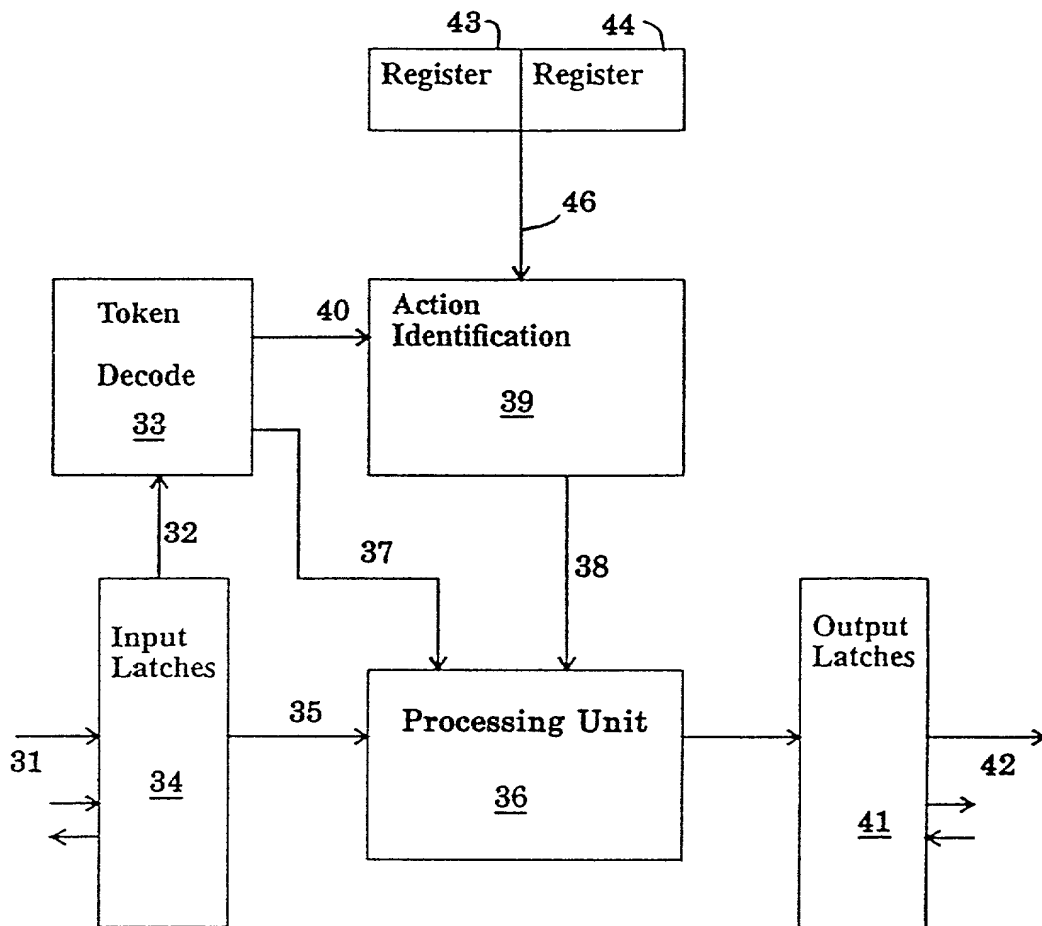


FIG. 10

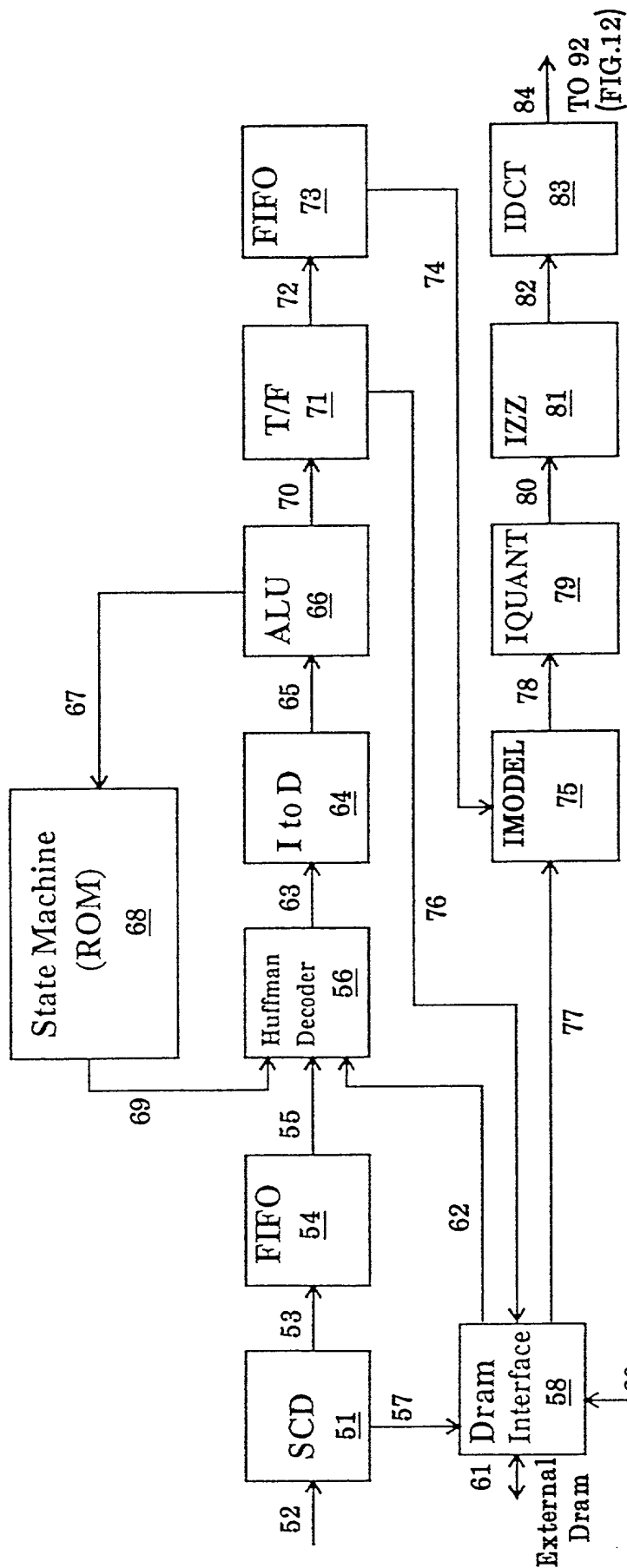


FIG. 11

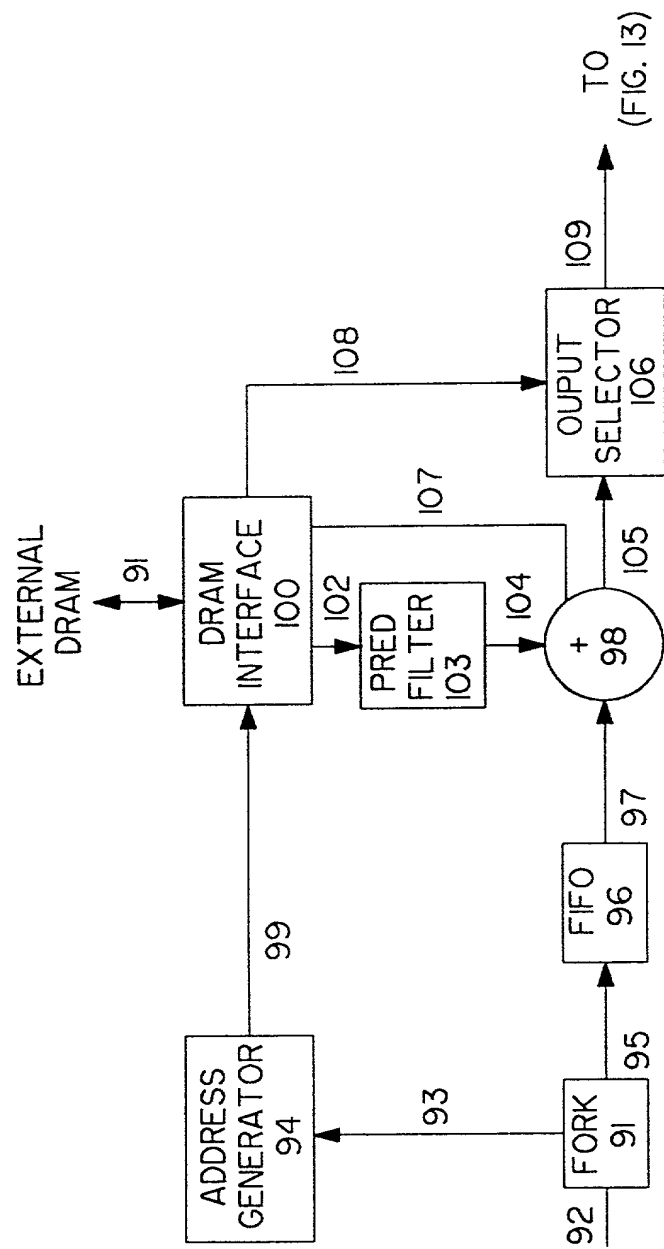


FIG. 12

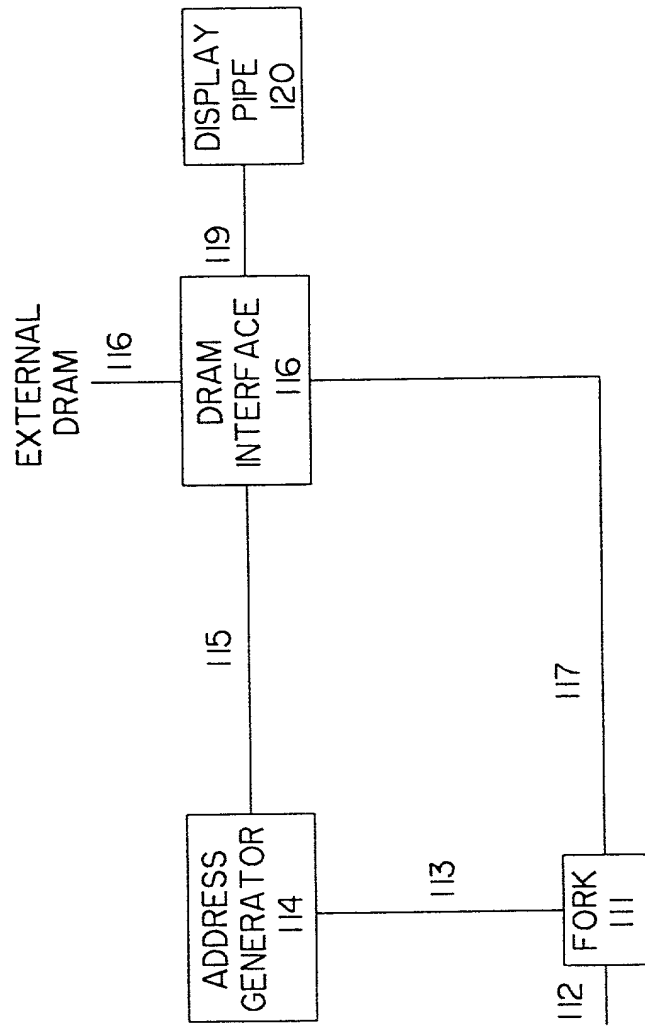
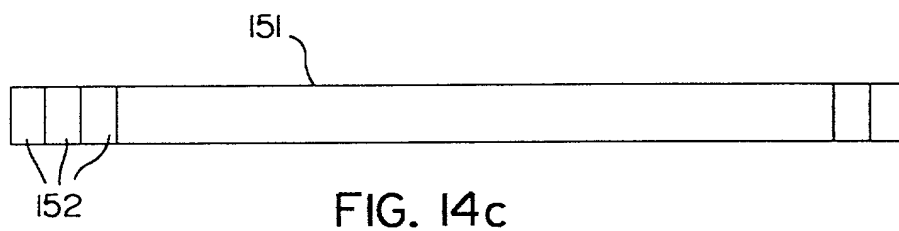


FIG. 13



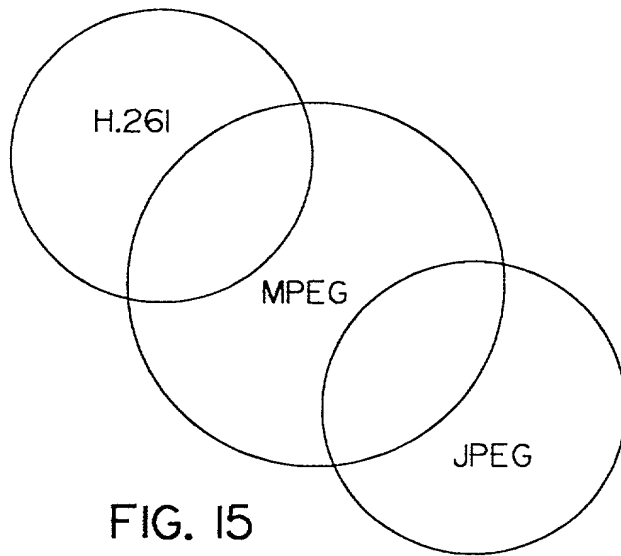


FIG. 15

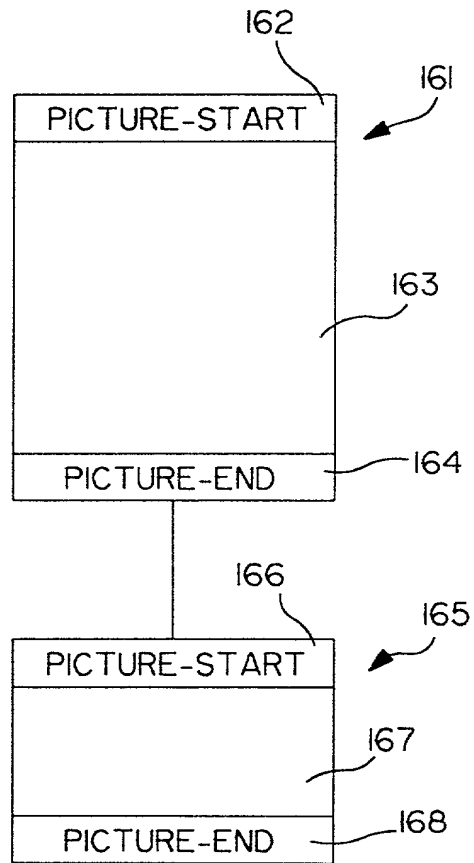


FIG. 16

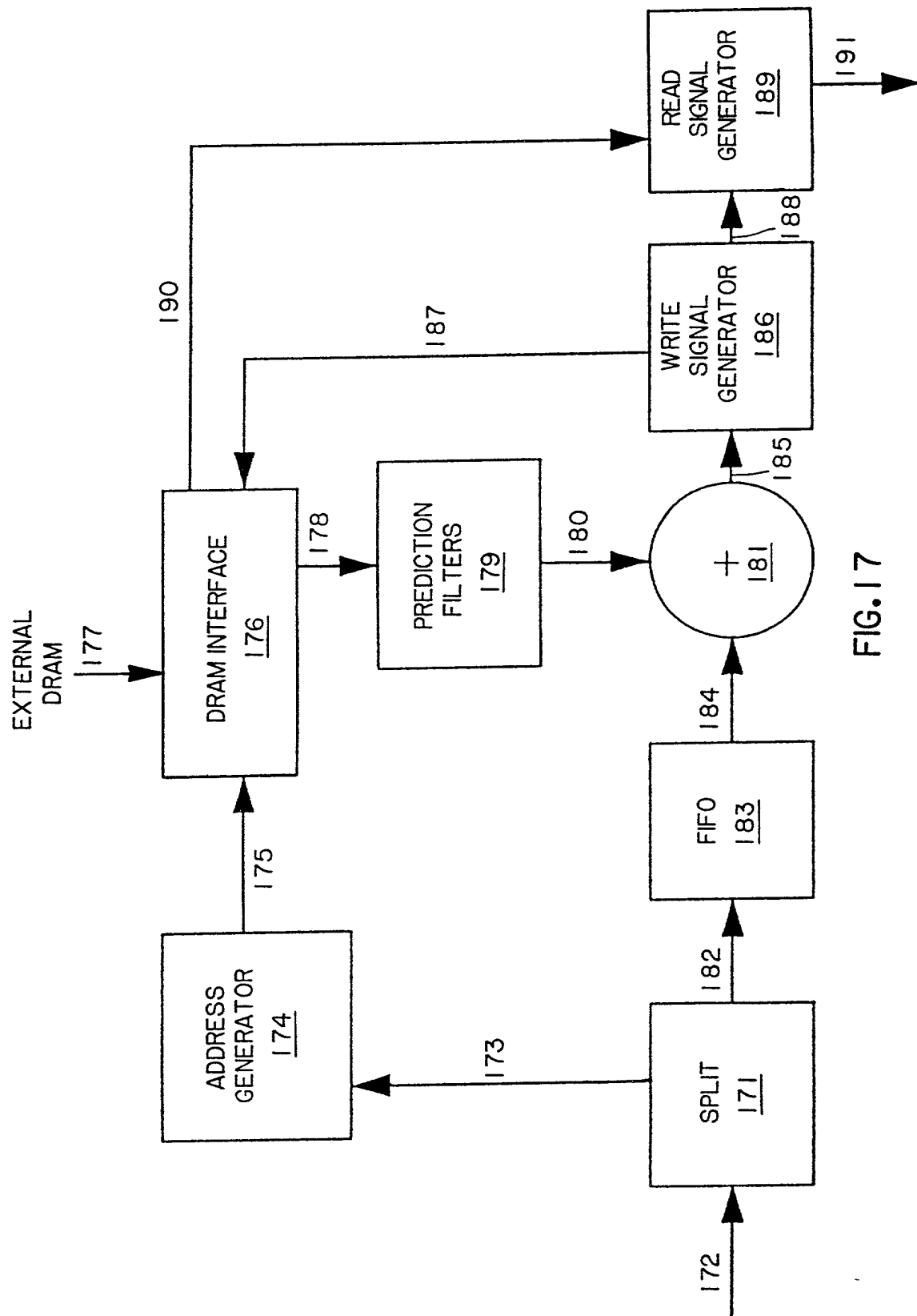


FIG. 17

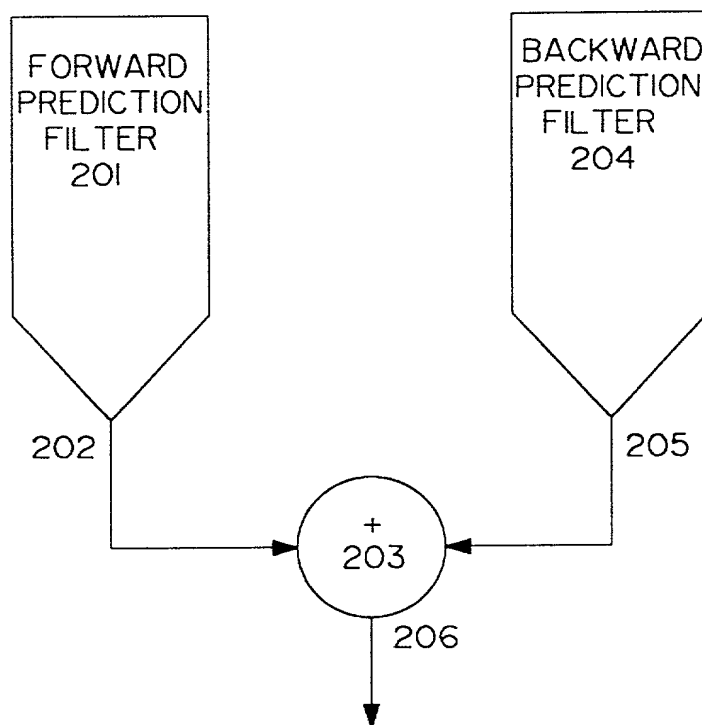


FIG. 18

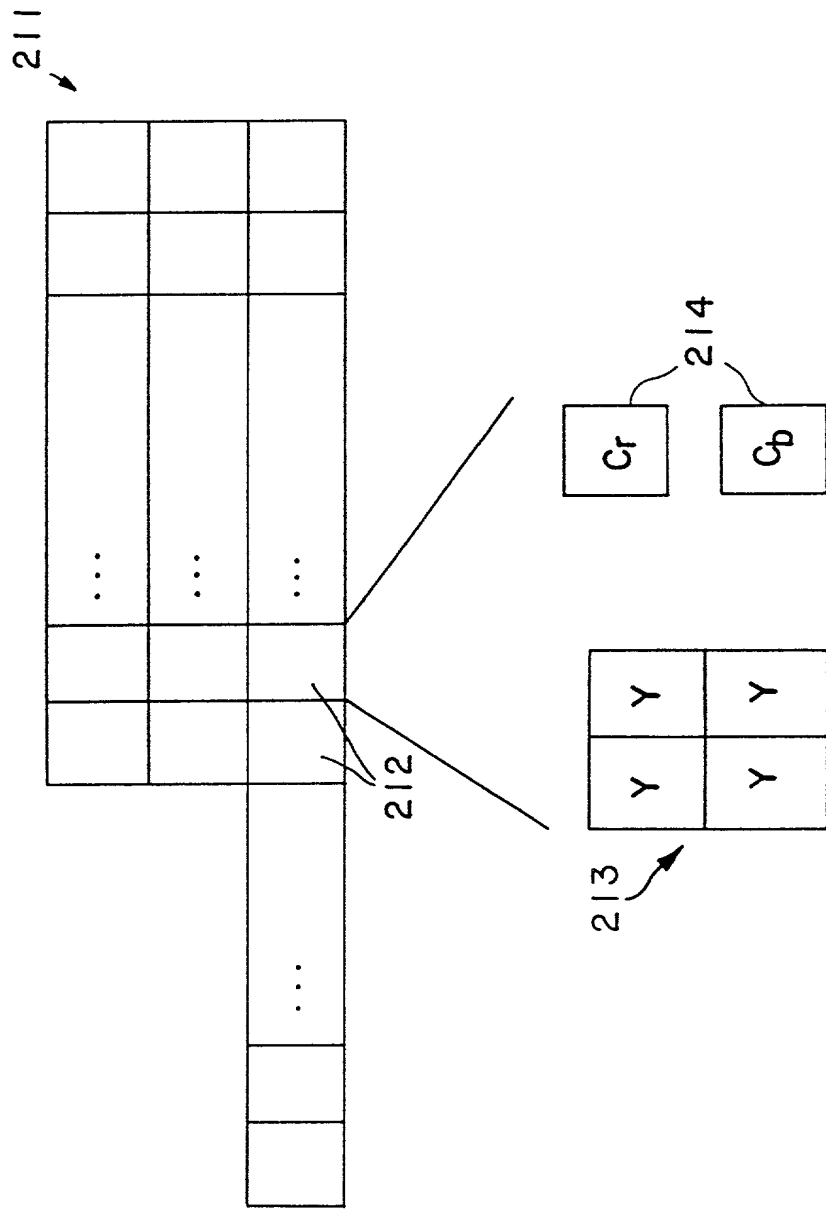


FIG. 19

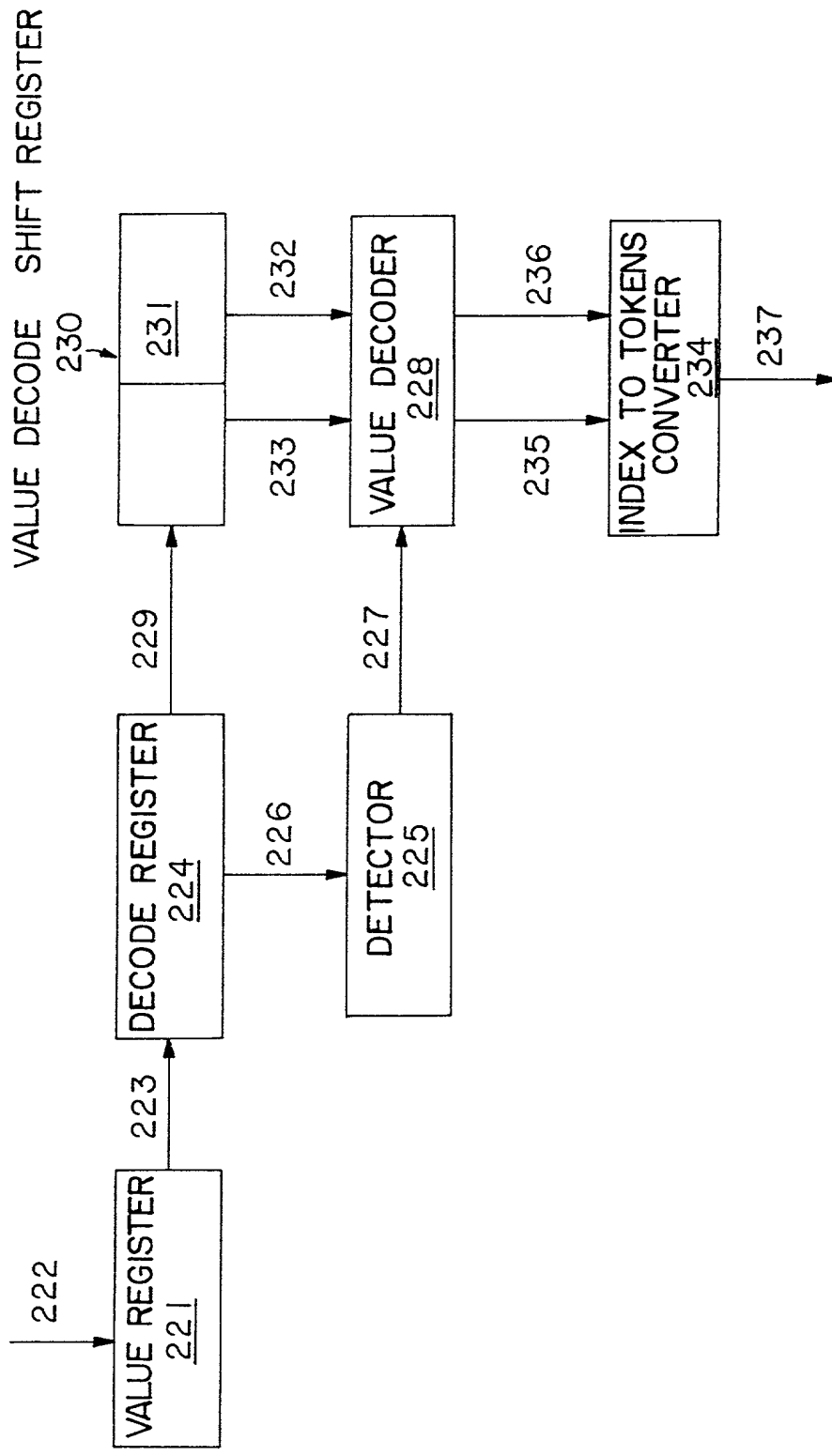


FIG.20

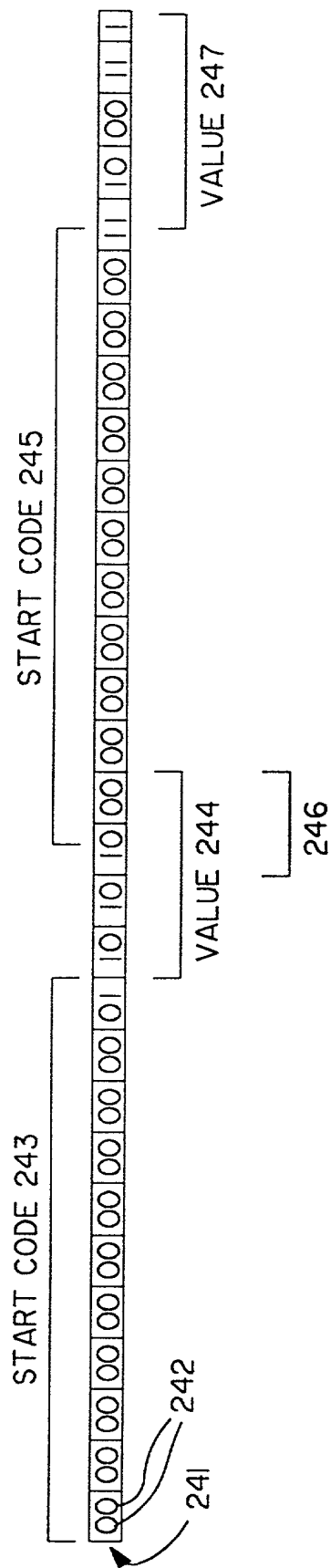


FIG. 21

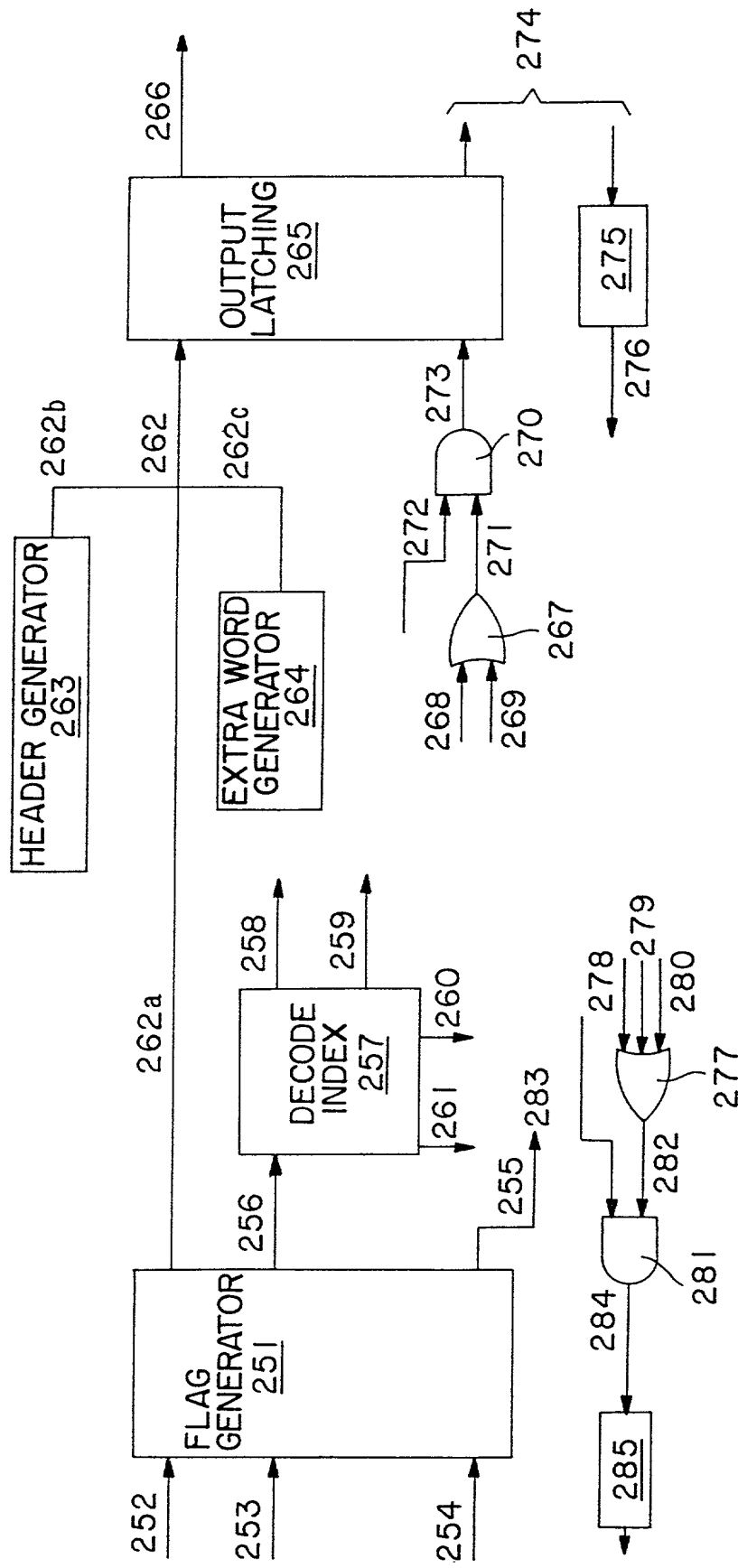


FIG.22

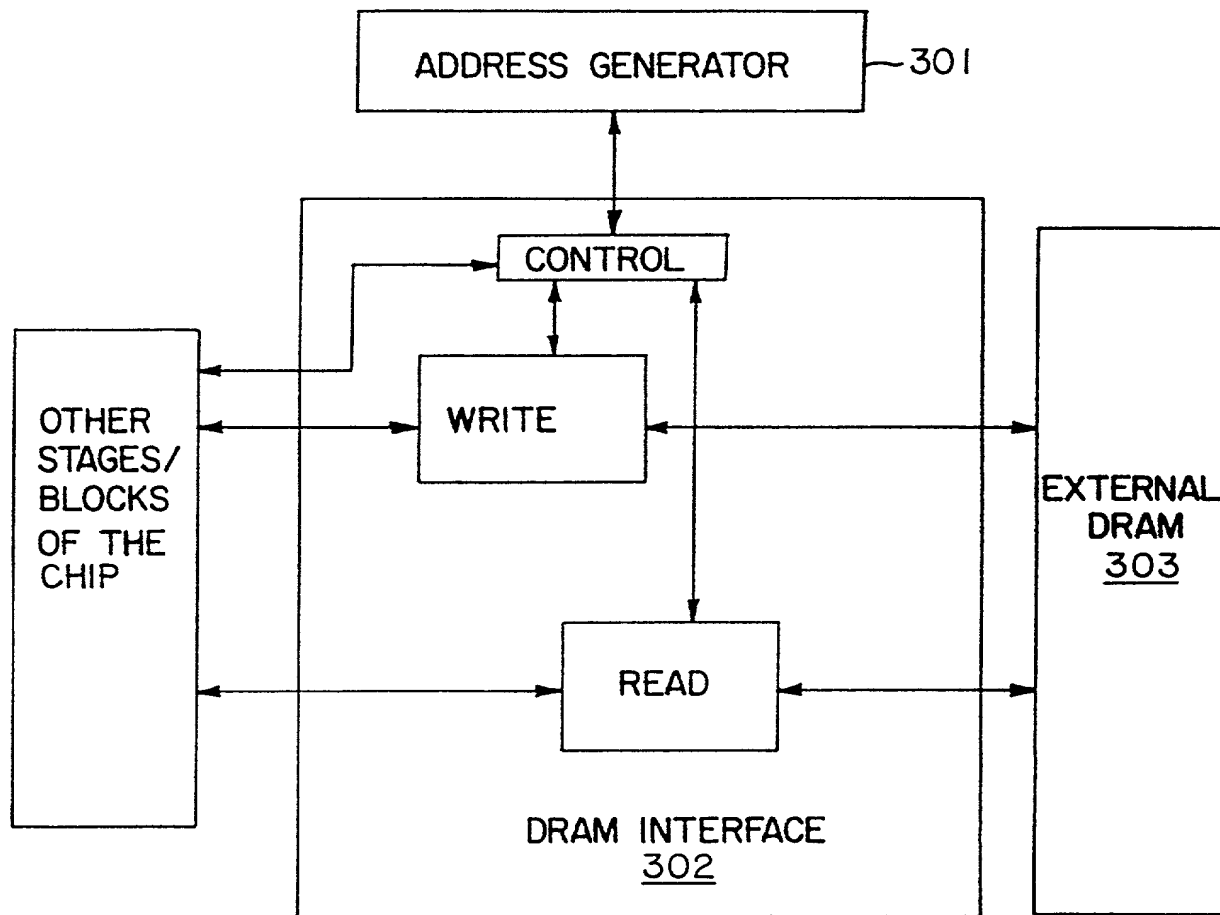


FIG.23

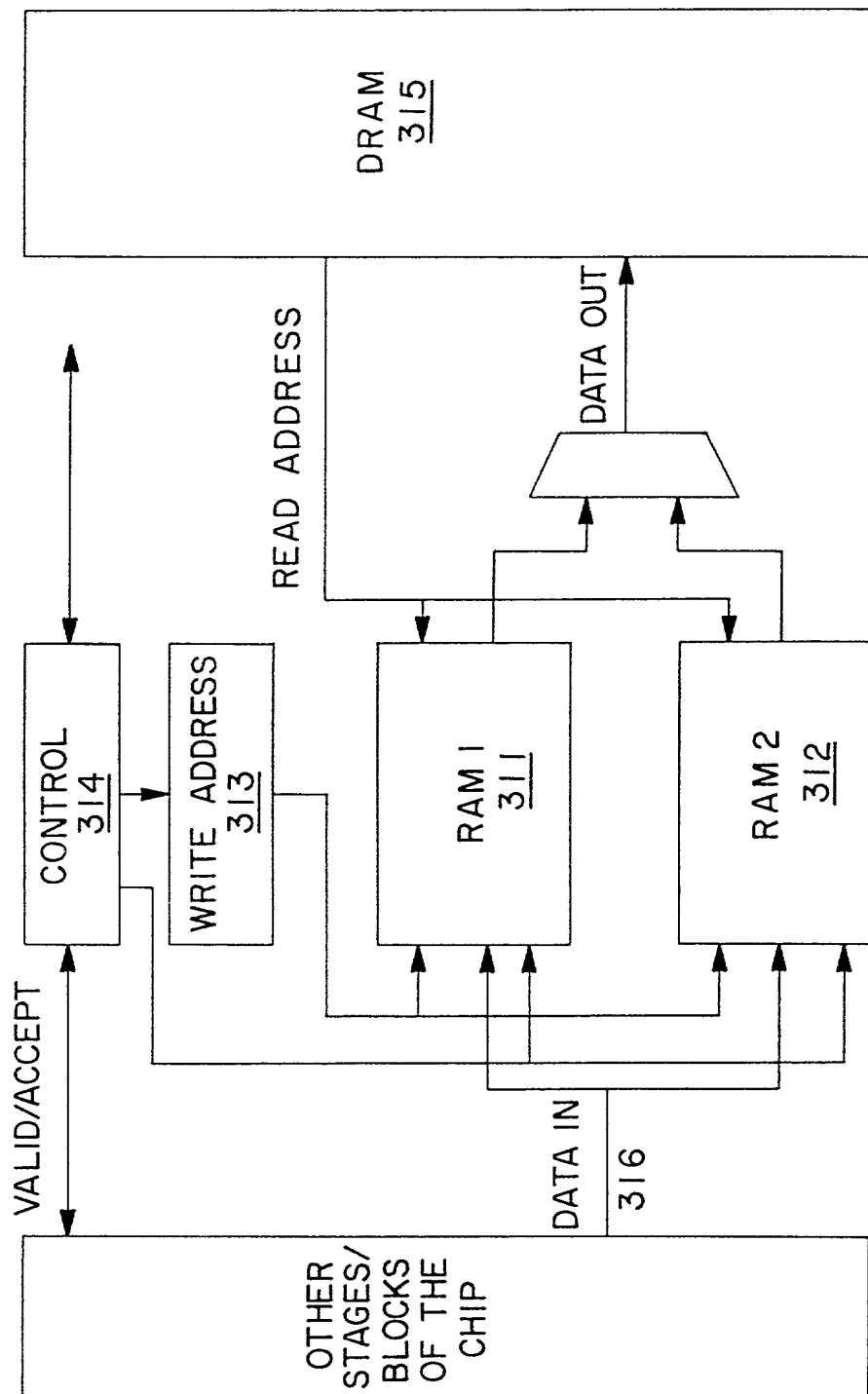


FIG. 24

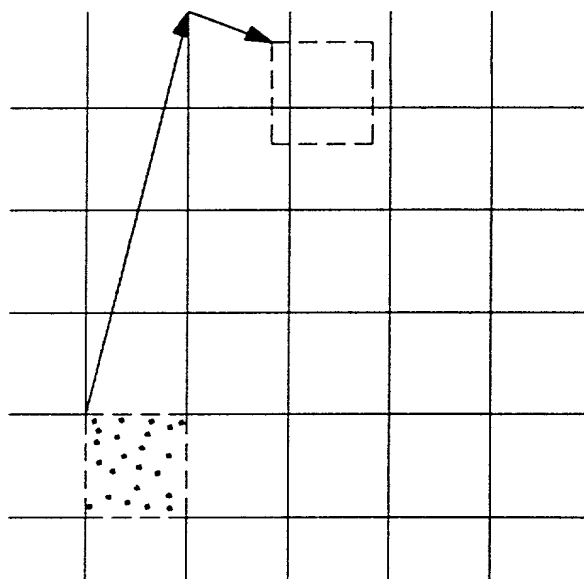


FIG. 25

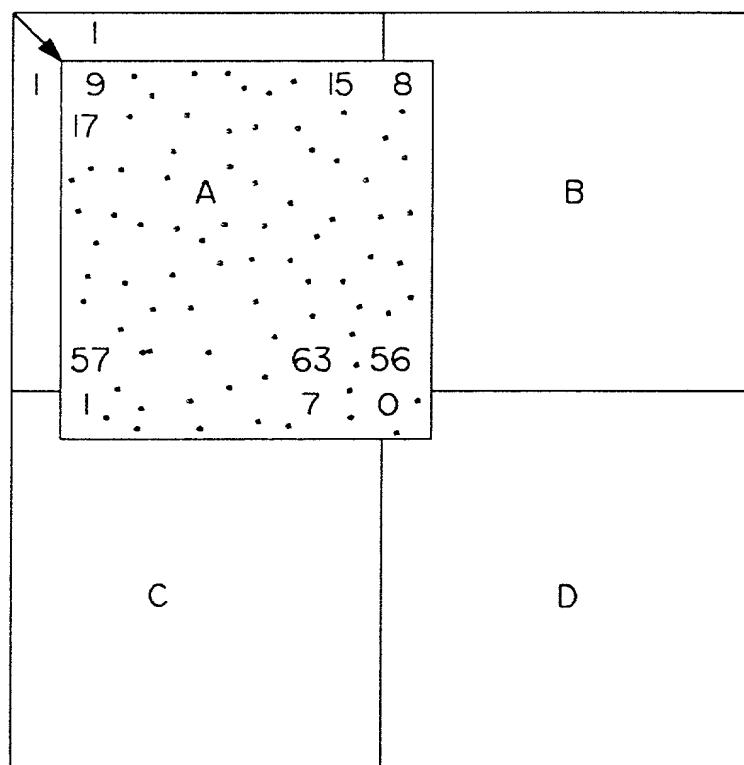


FIG. 26

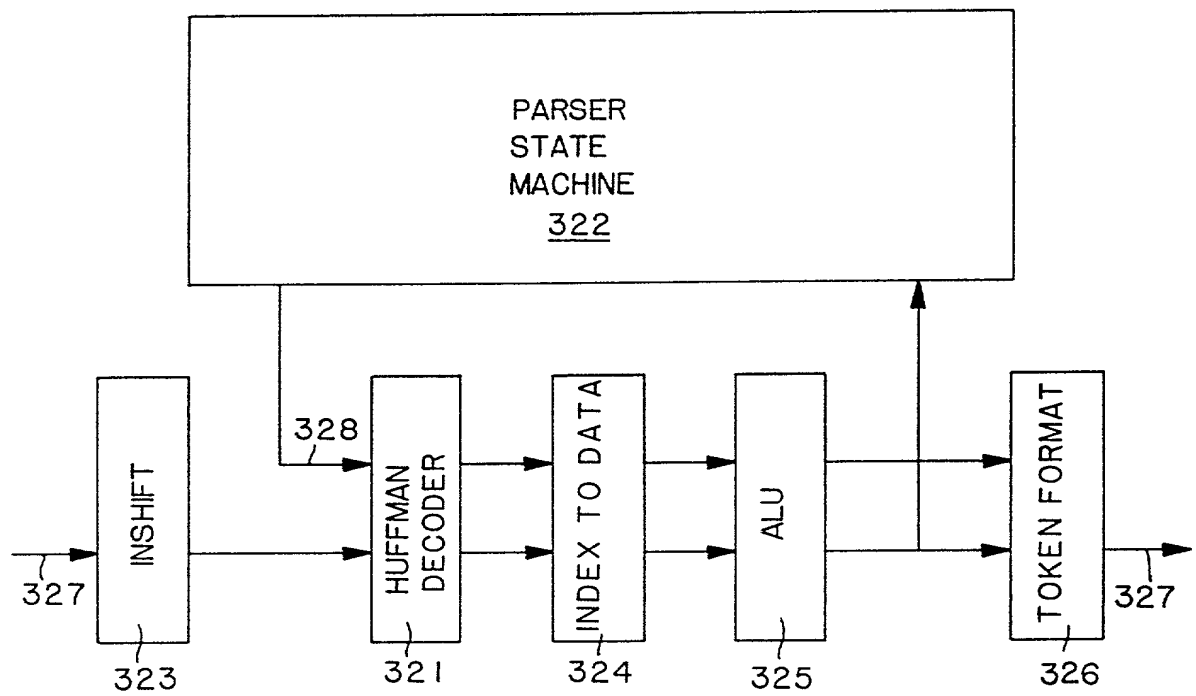


FIG.27

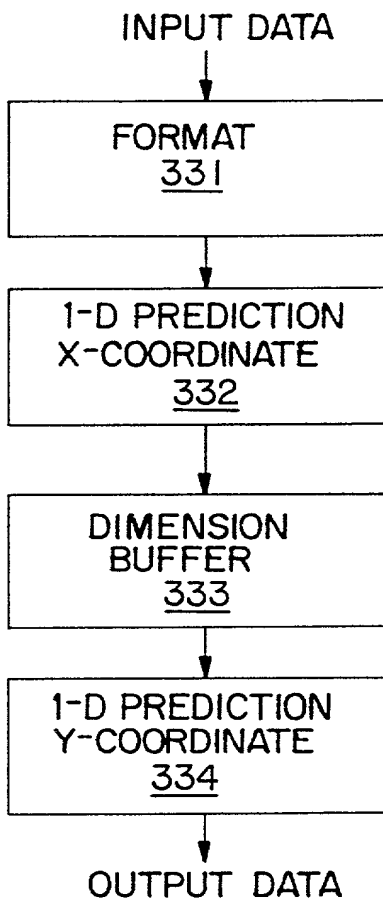


FIG.28

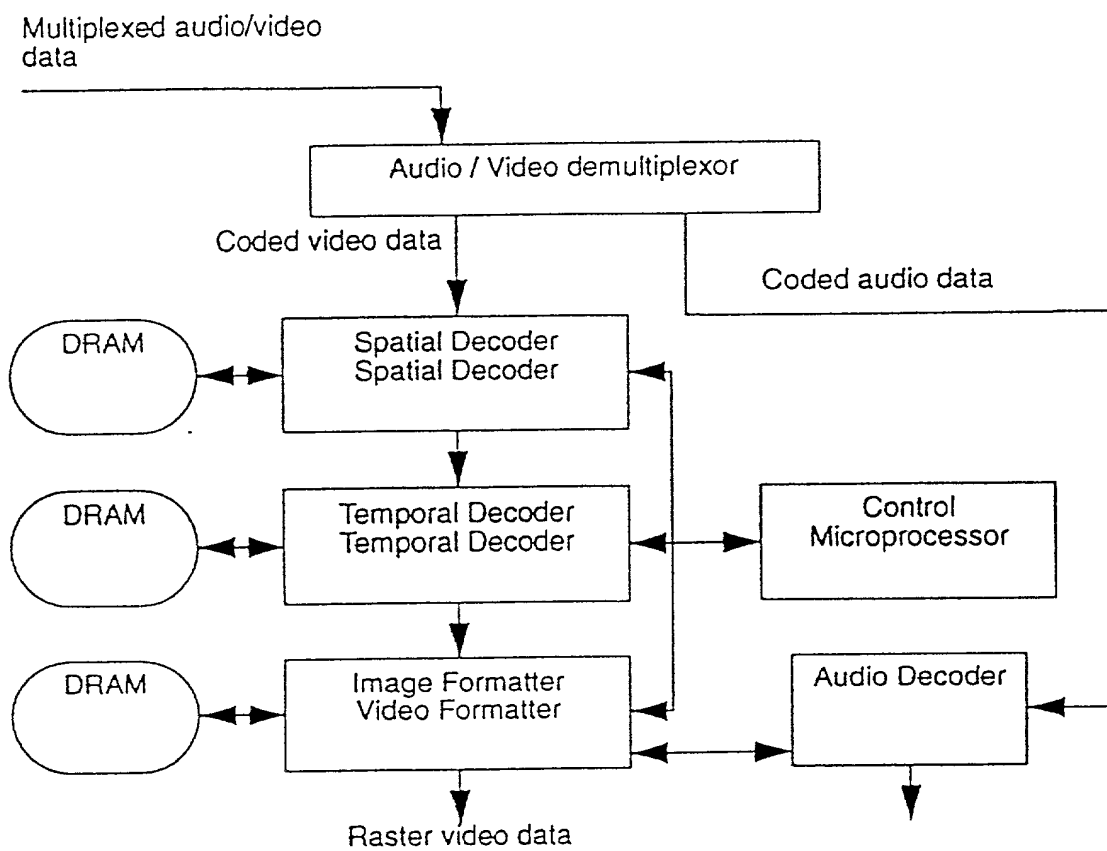


FIG.29

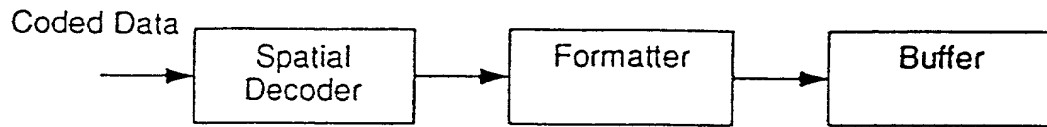


FIG.30

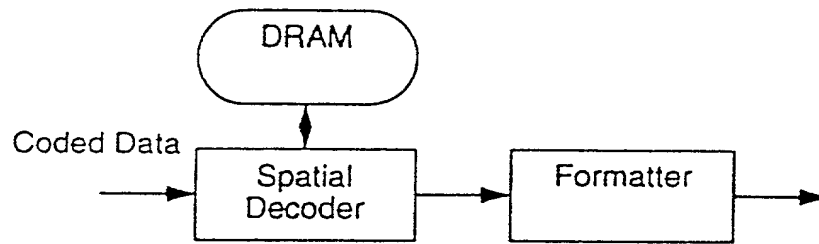


FIG.31

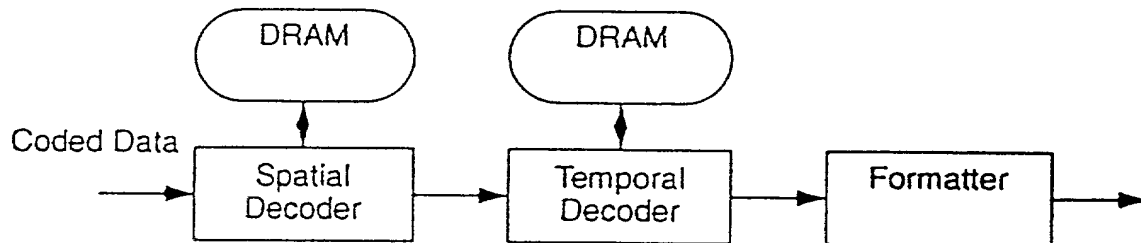


FIG.32

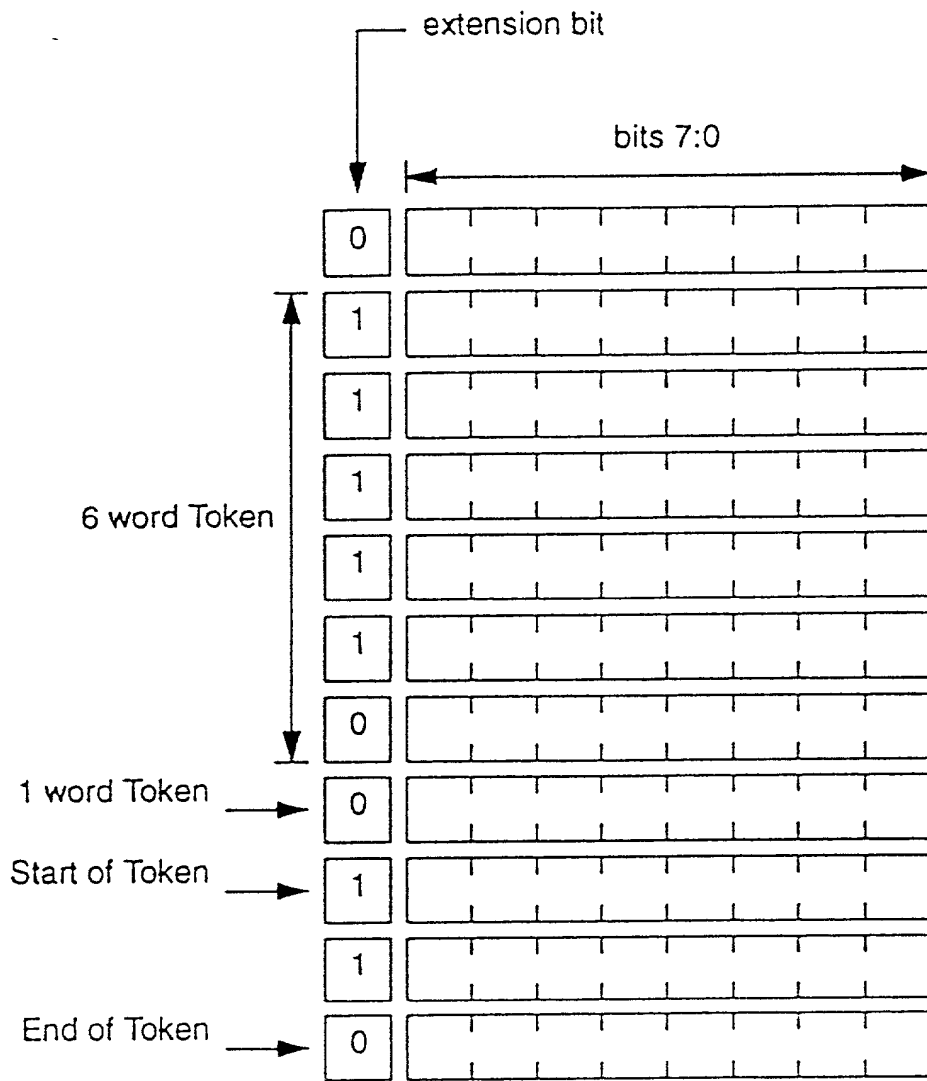


FIG.33

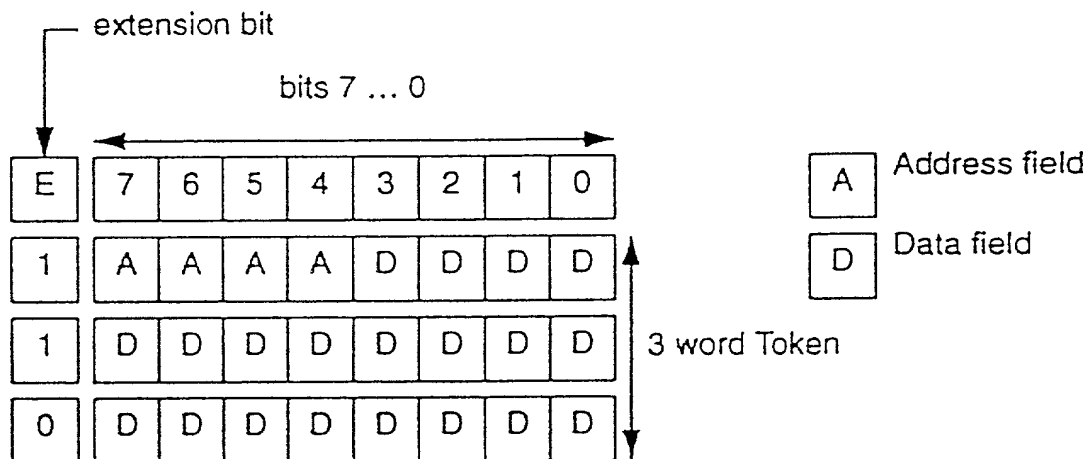


FIG.34

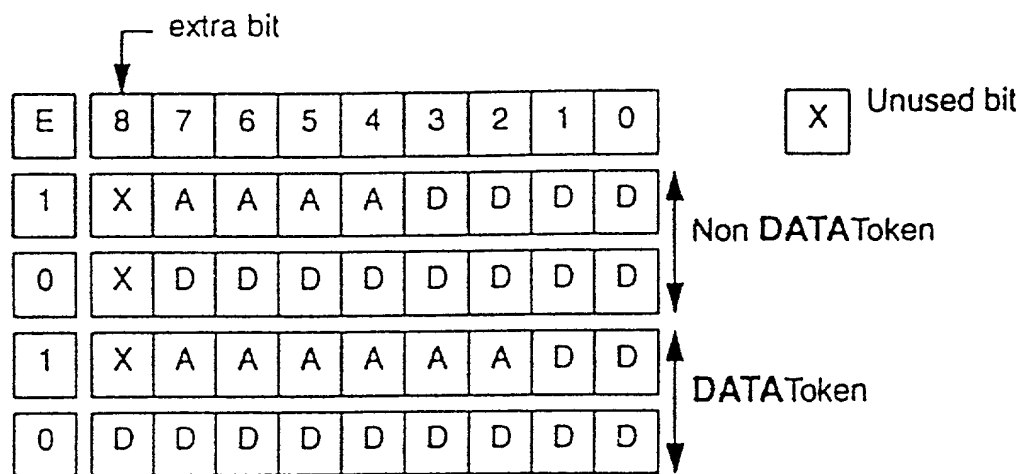
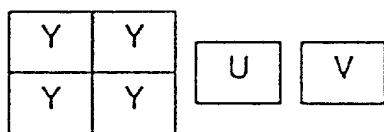


FIG.35



MPEG 4:2:0
macroblock

FIG.36A



JPEG 2:1:1
macroblock

FIG.36B

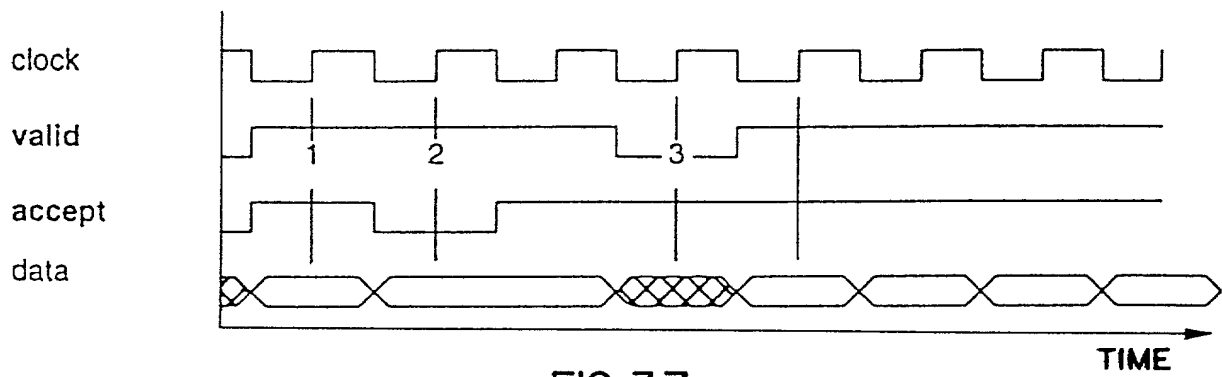


FIG.37

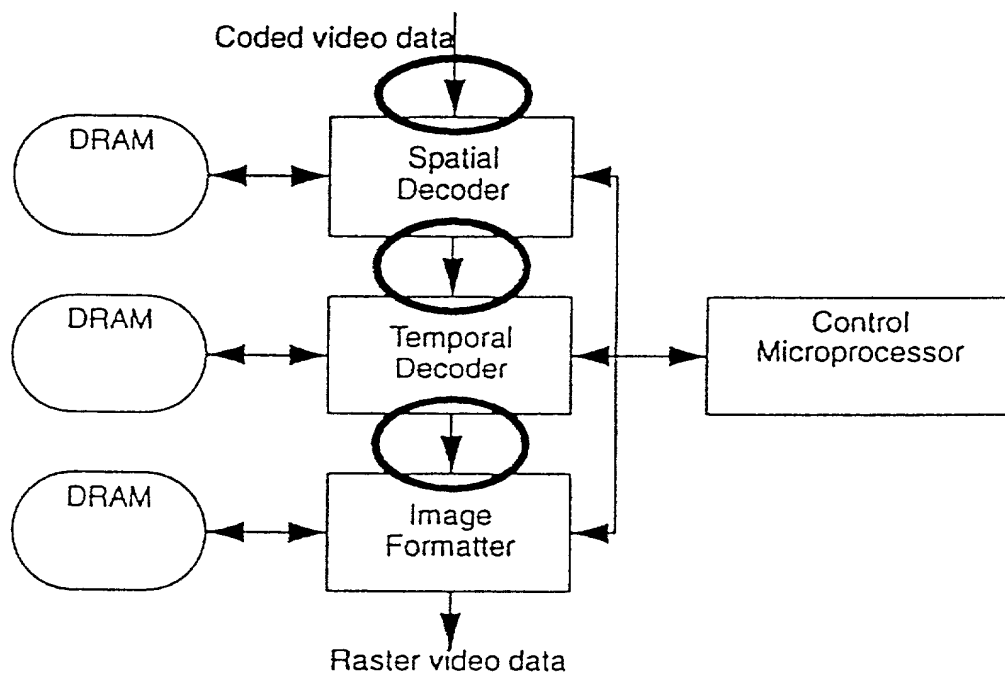


FIG.38

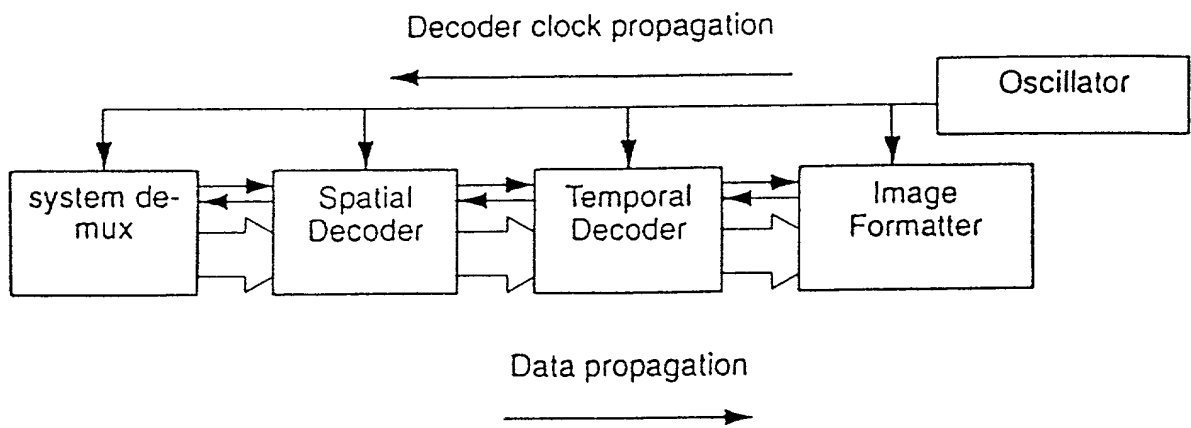


FIG.39

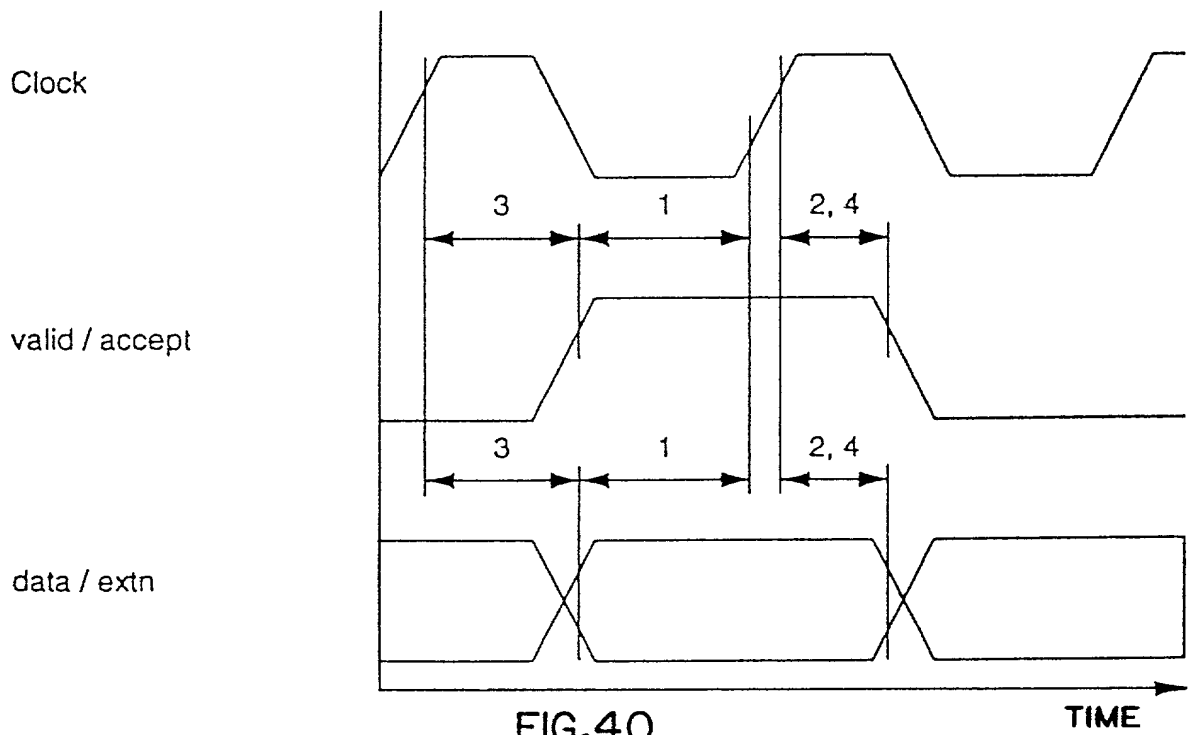


FIG.40



FIG.41

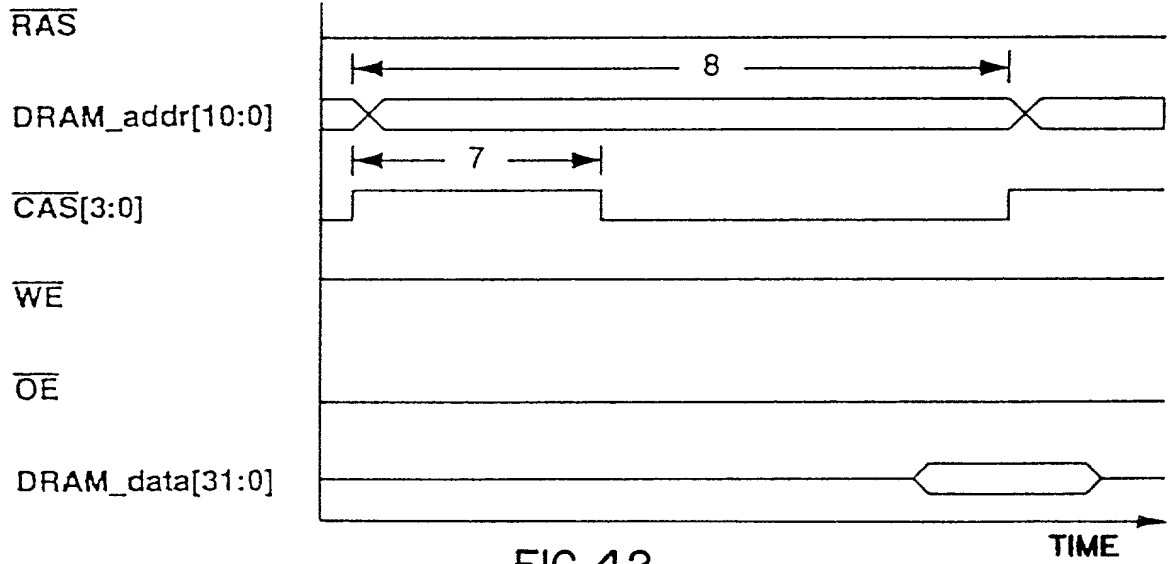


FIG.42

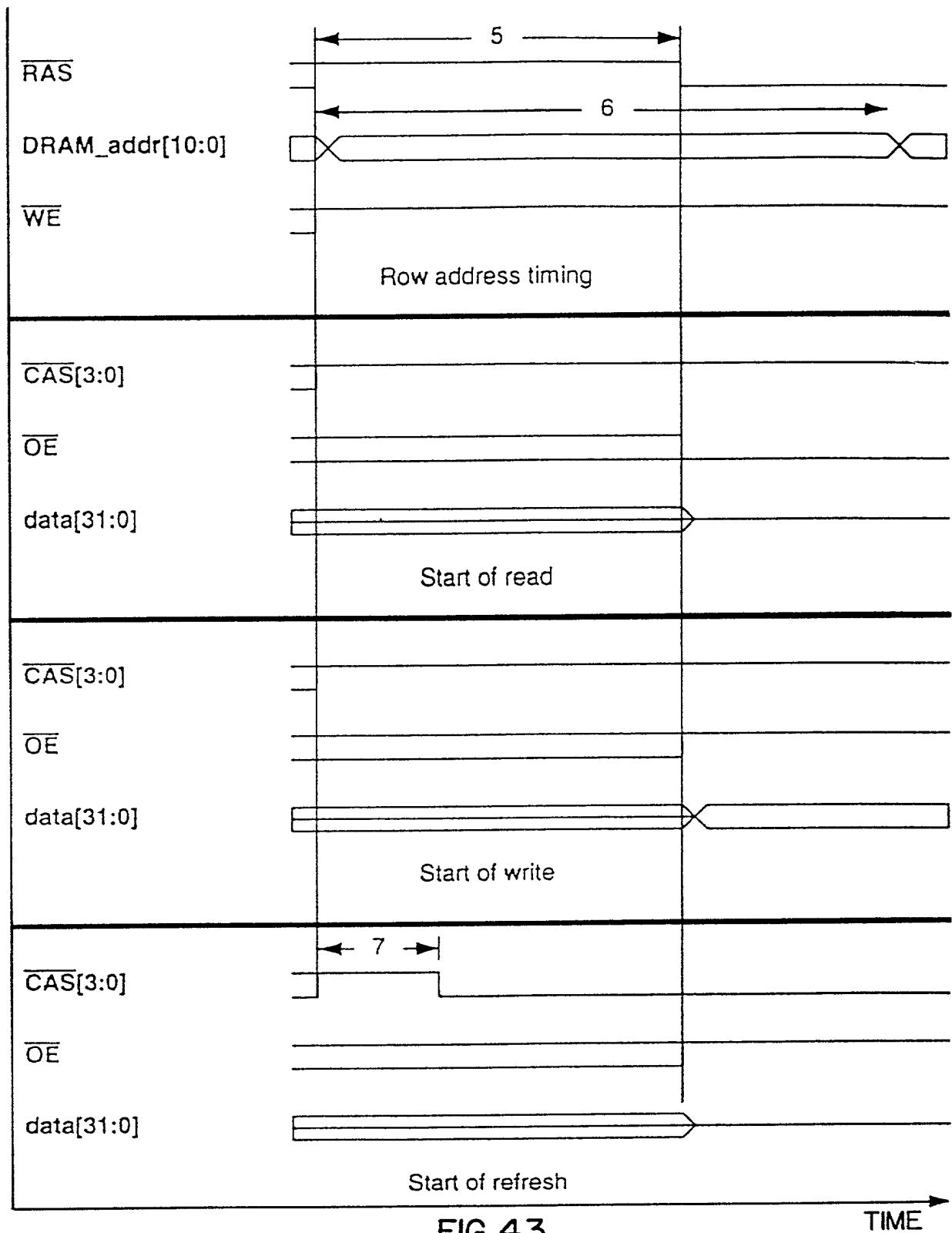


FIG.43

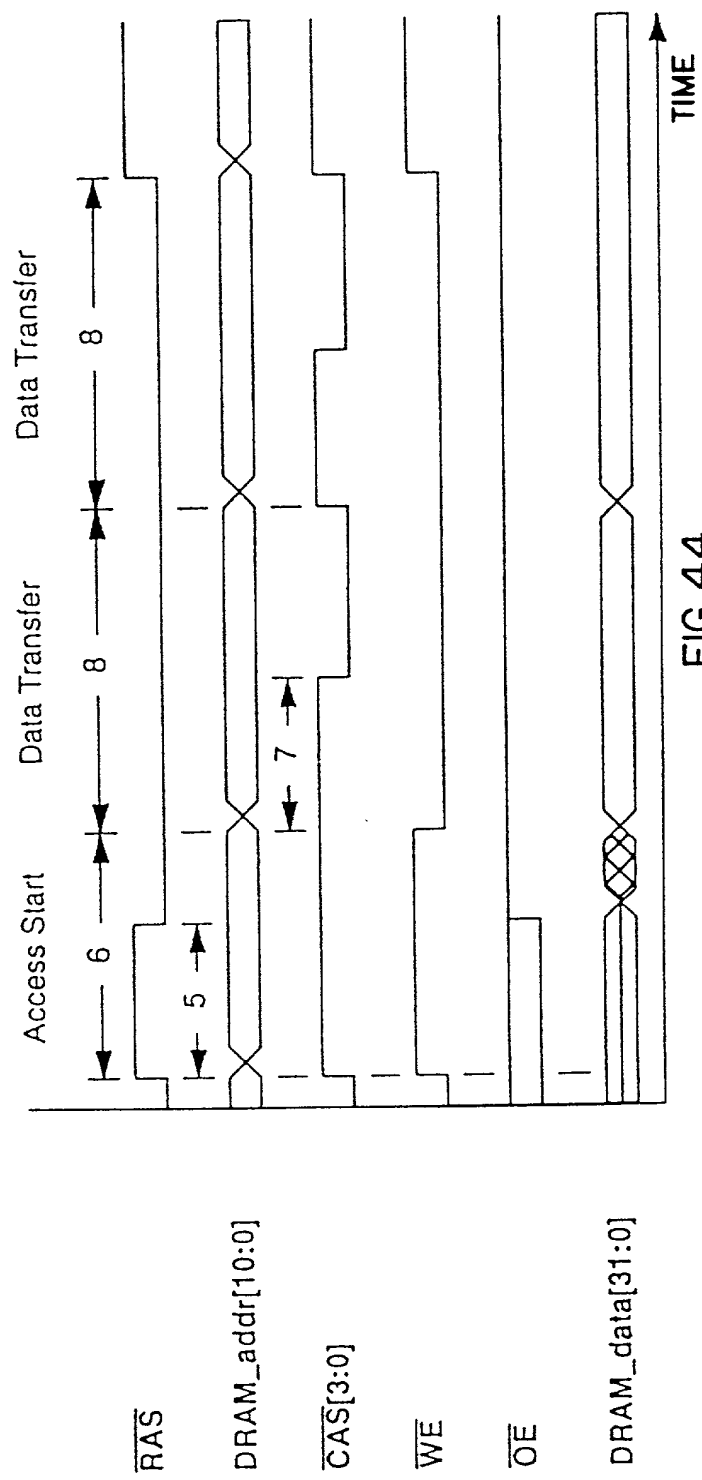


FIG.44

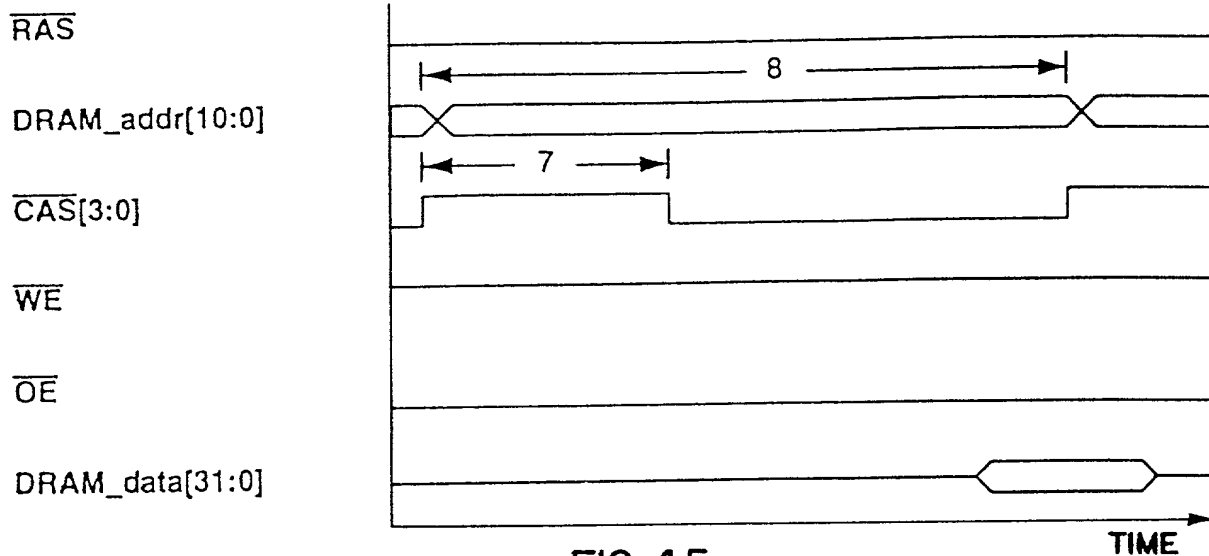


FIG.45

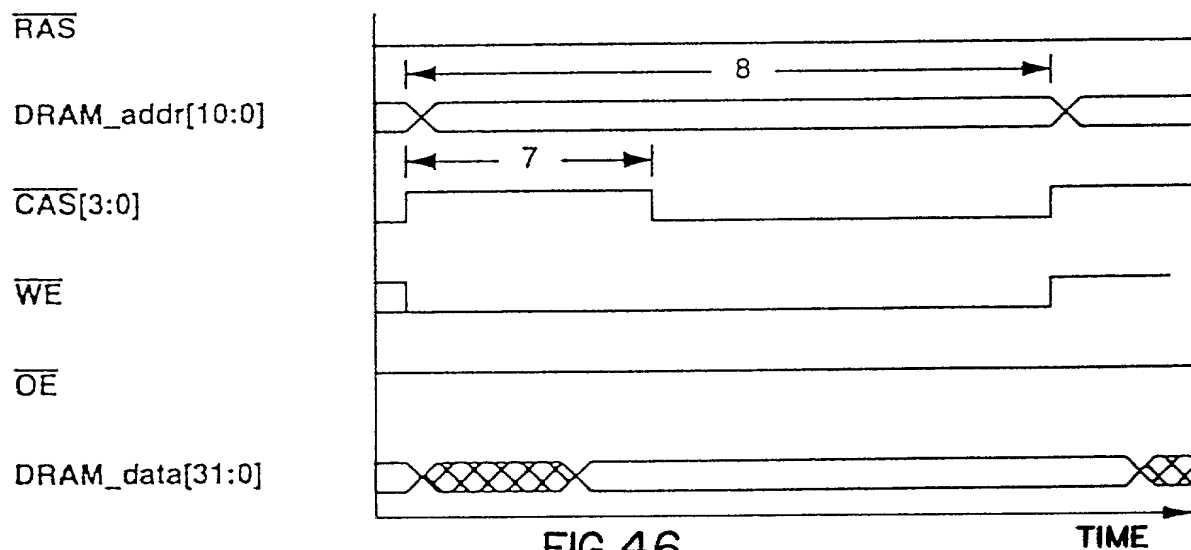


FIG.46

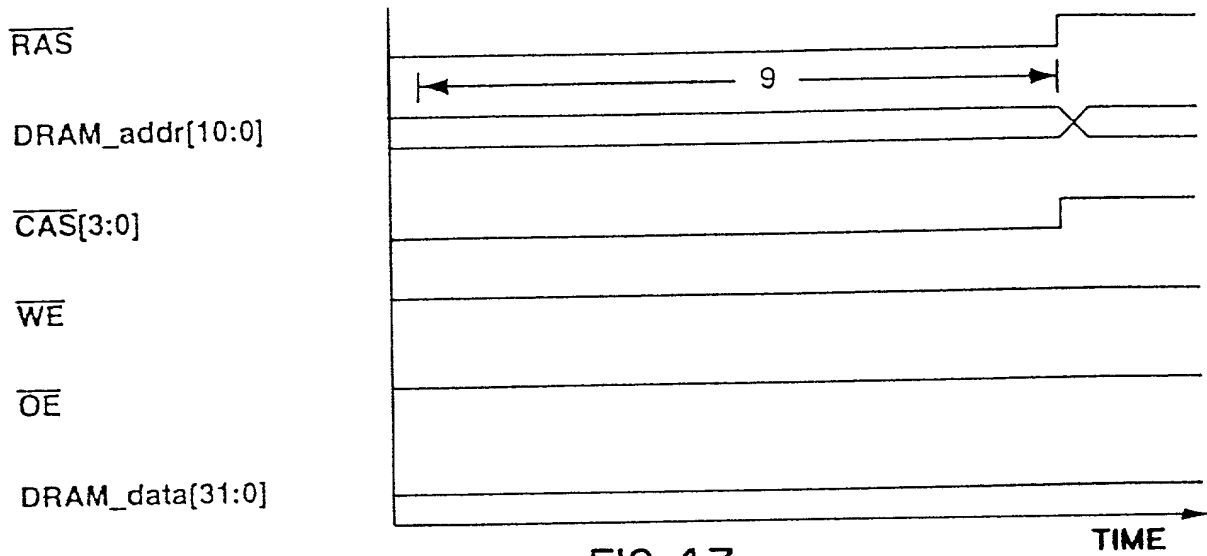


FIG.47

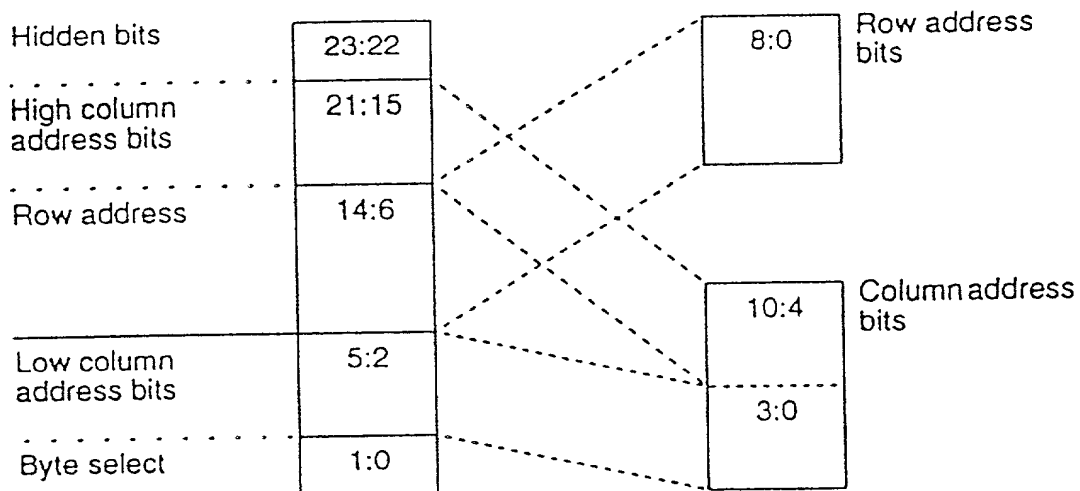


FIG.48

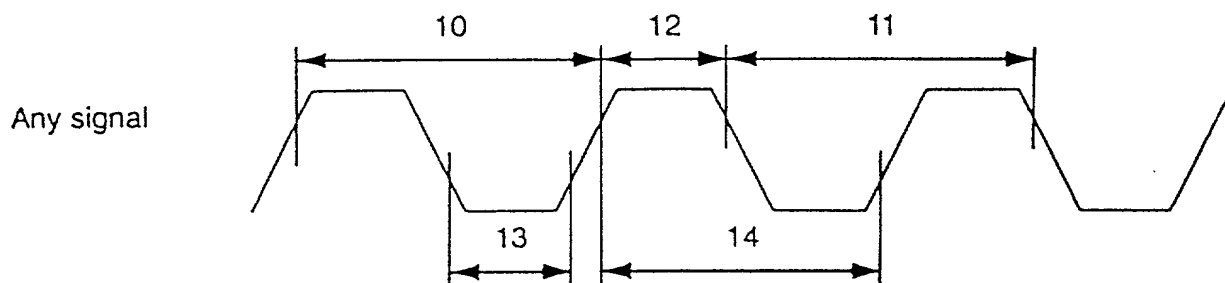


FIG. 49

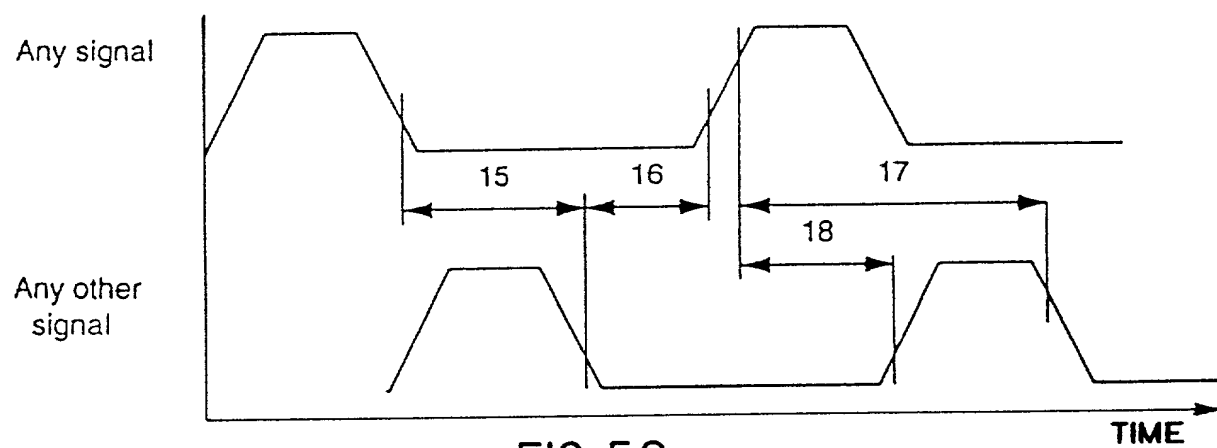


FIG. 50

The diagram shows two signals over time: 'Any bus' and 'Any strobe'. The 'Any bus' signal is a high-level signal that transitions from low to high at time 19, remains high until time 20, transitions back to low, and then remains high until time 21. The 'Any strobe' signal is a pulse that rises at time 19, falls at time 20, rises again at time 22, and falls at time 21. The time intervals are labeled as follows: 19 is the time from the start of the first bus transition to the start of the first strobe transition; 20 is the time from the end of the first bus transition to the end of the first strobe transition; 21 is the time from the start of the second bus transition to the start of the second strobe transition; and 22 is the time from the end of the first strobe transition to the end of the second strobe transition.

FIG.52

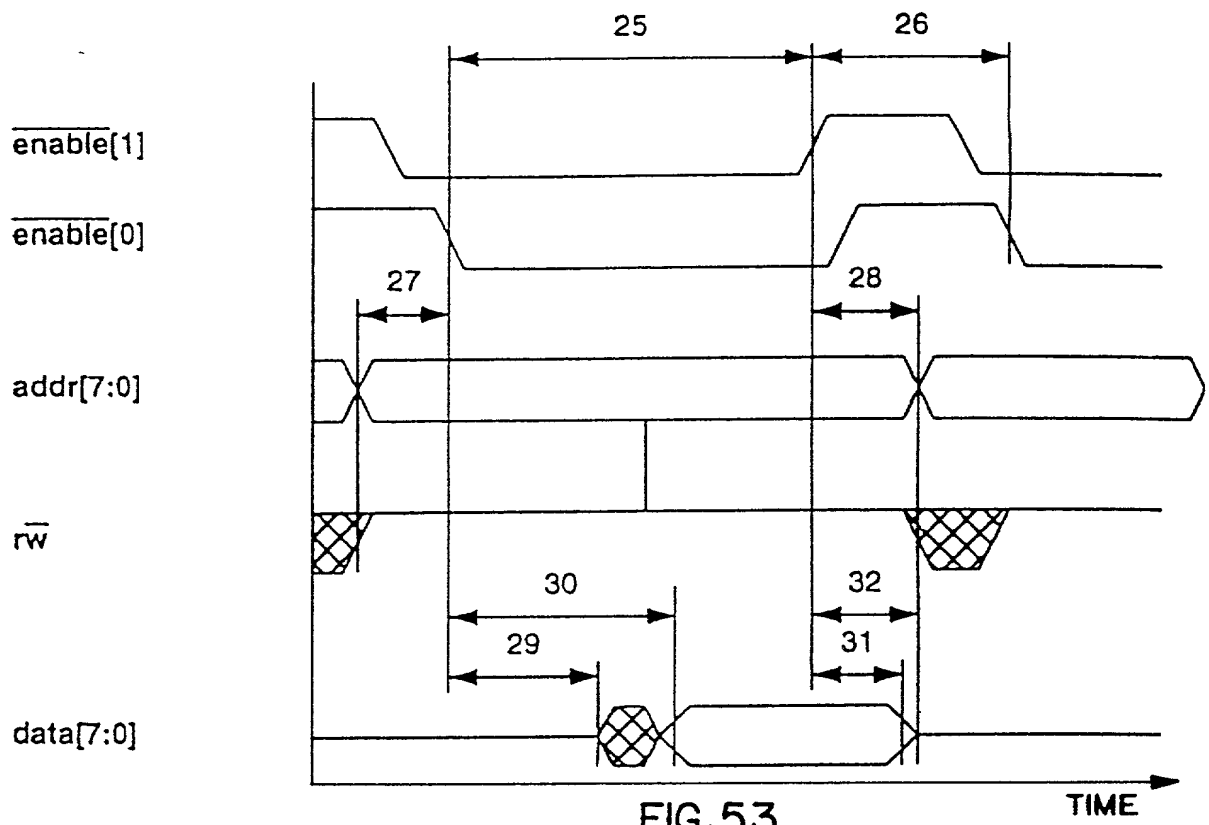


FIG.53

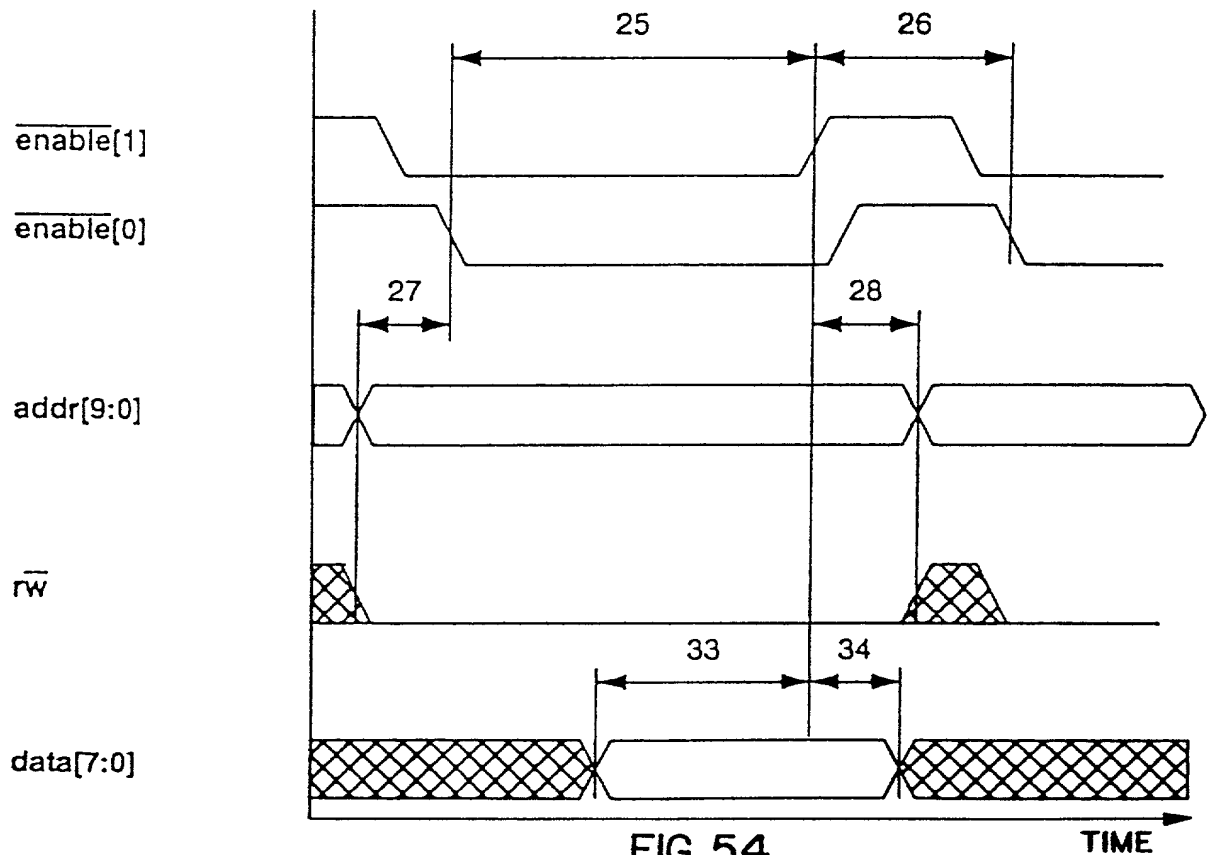


FIG.54

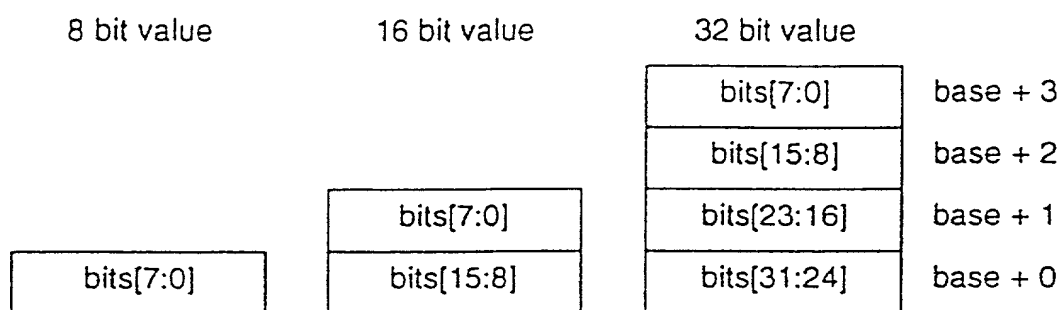


FIG.55

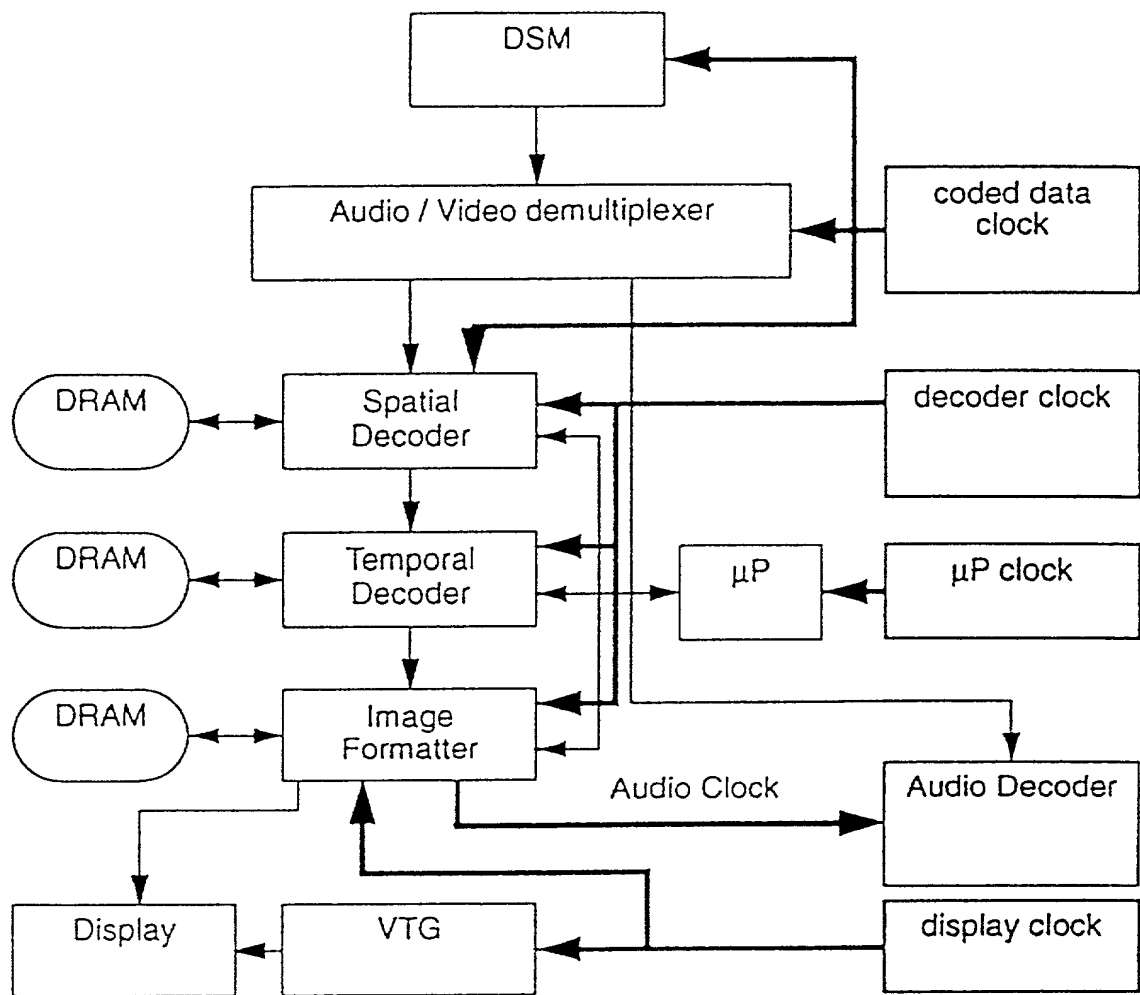


FIG.56

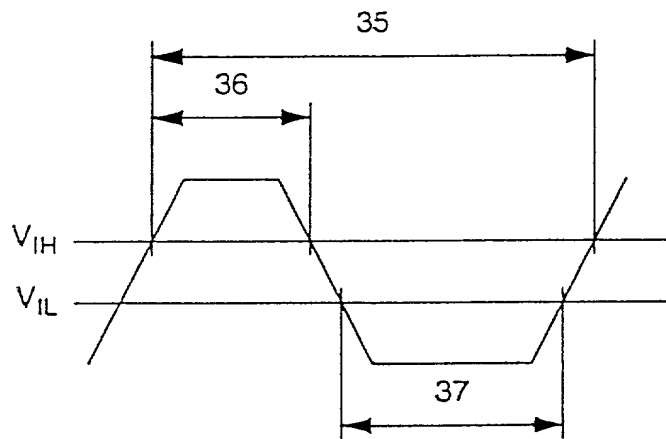


FIG.57

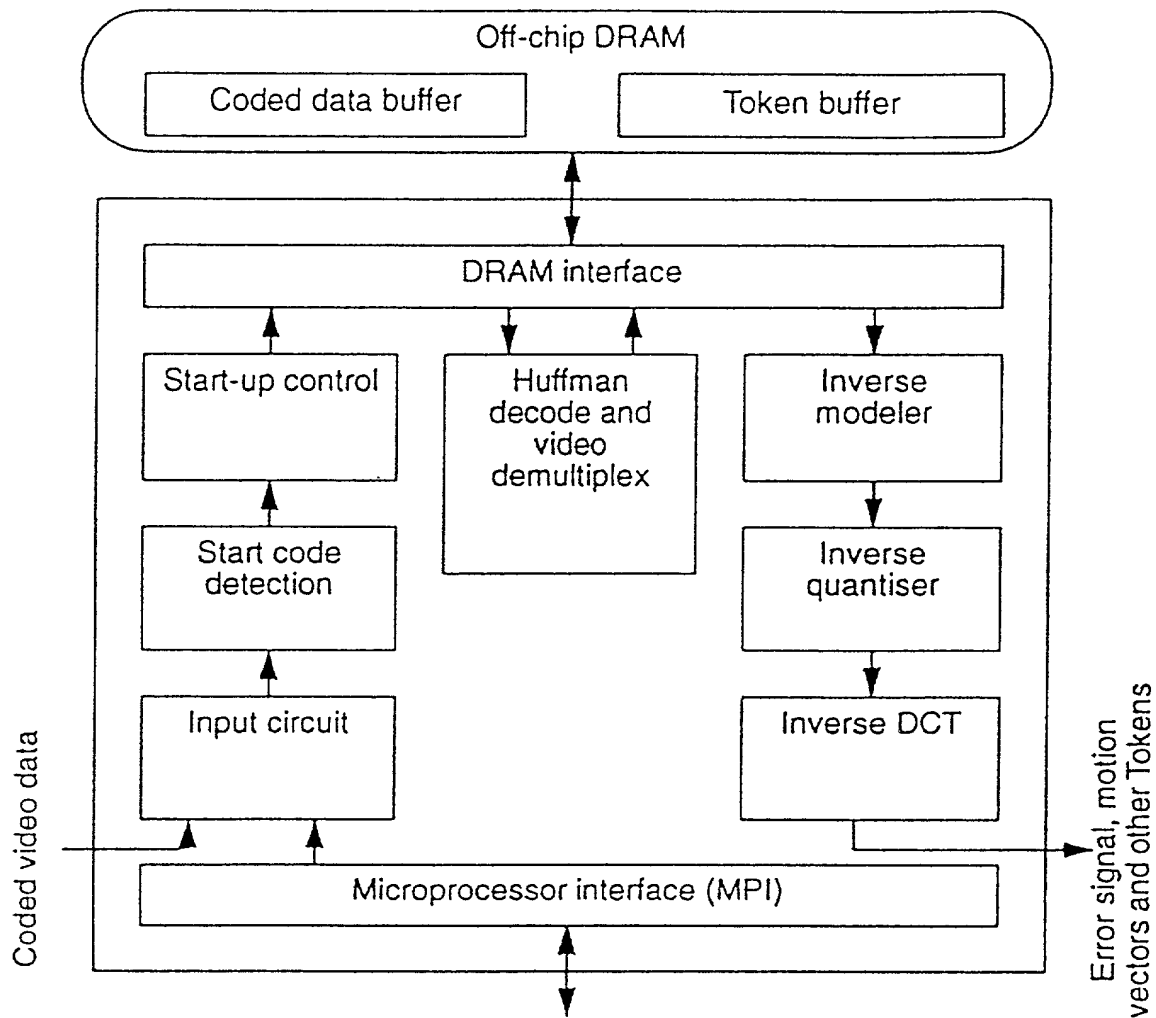


FIG.58

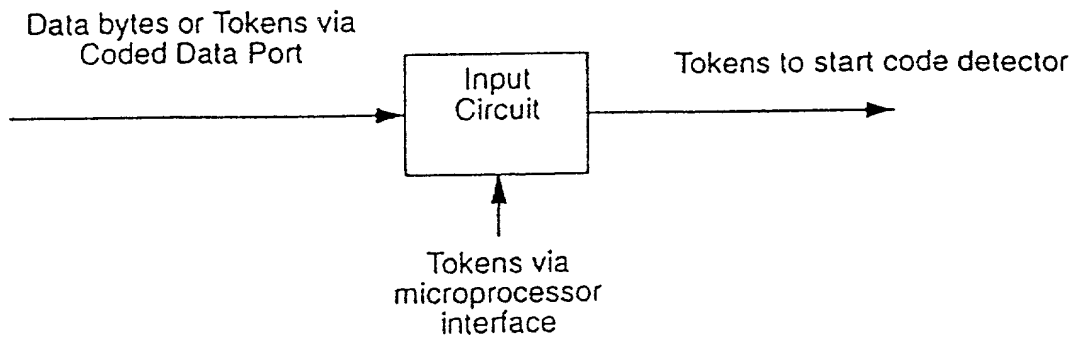


FIG.59

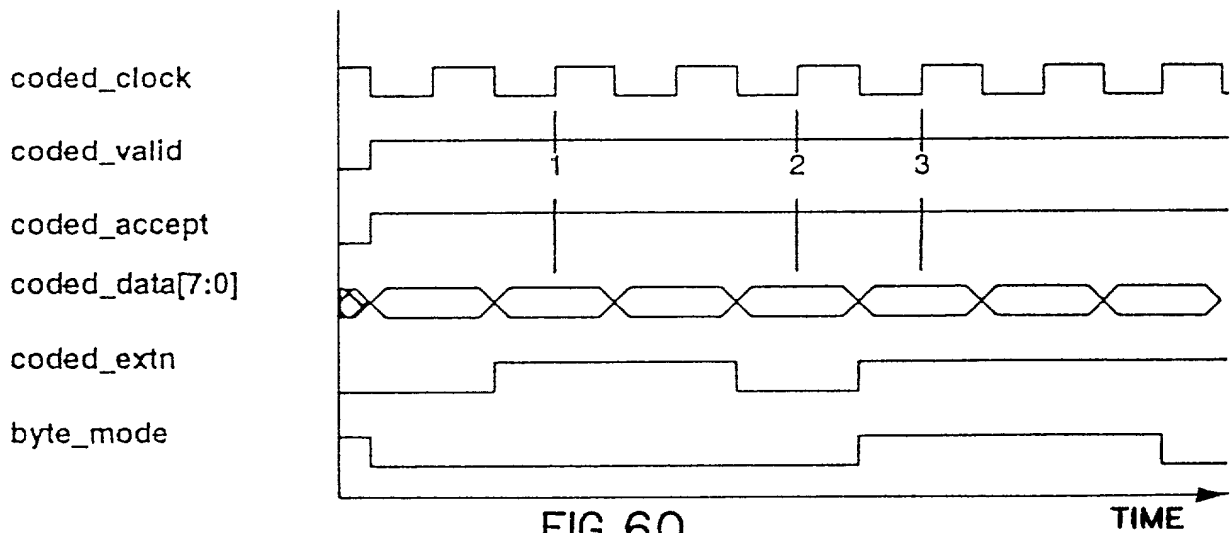


FIG.60

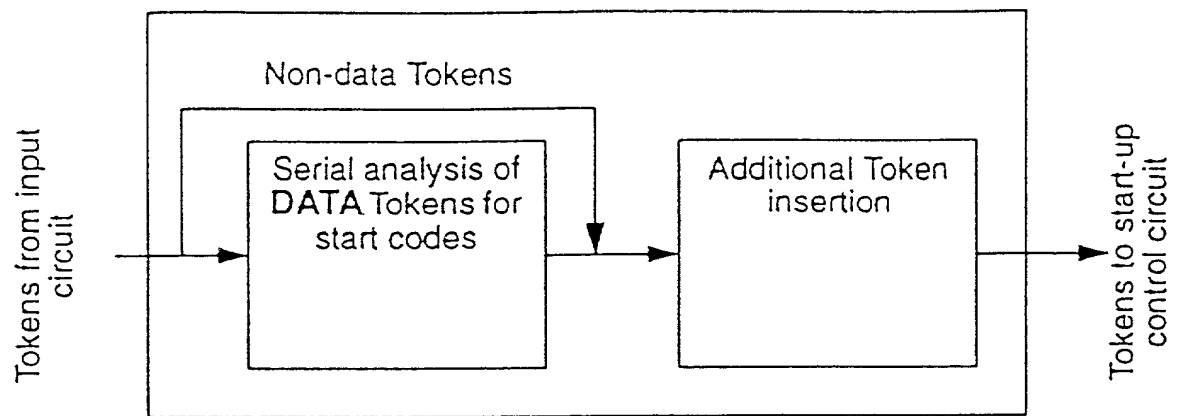


FIG. 61

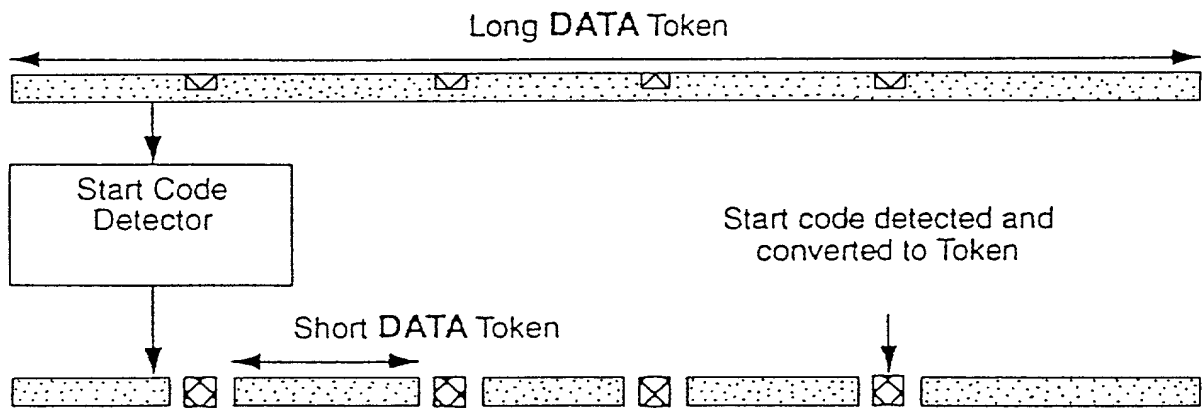


FIG. 62

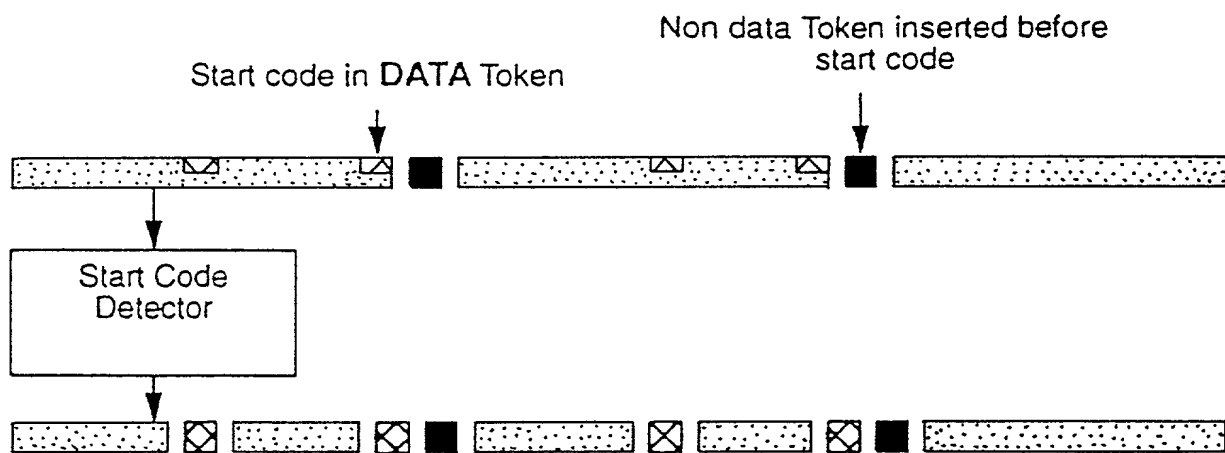


FIG.63

This looks like an MPEG picture start

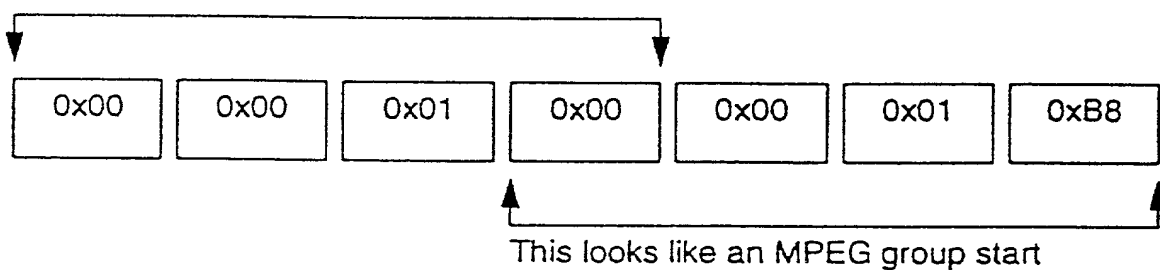


FIG.64

This looks like an MPEG slice start (0x28)

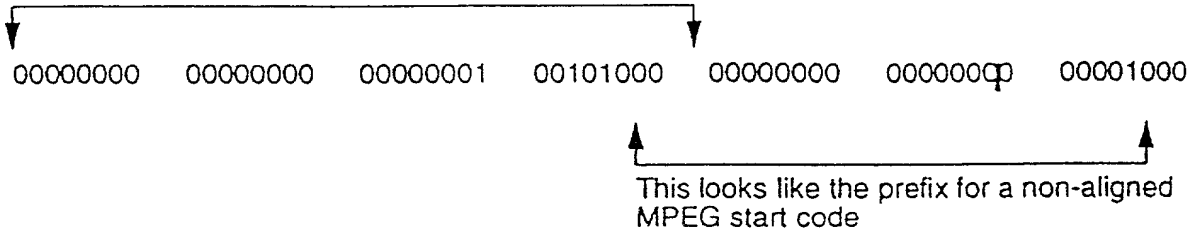


FIG.65

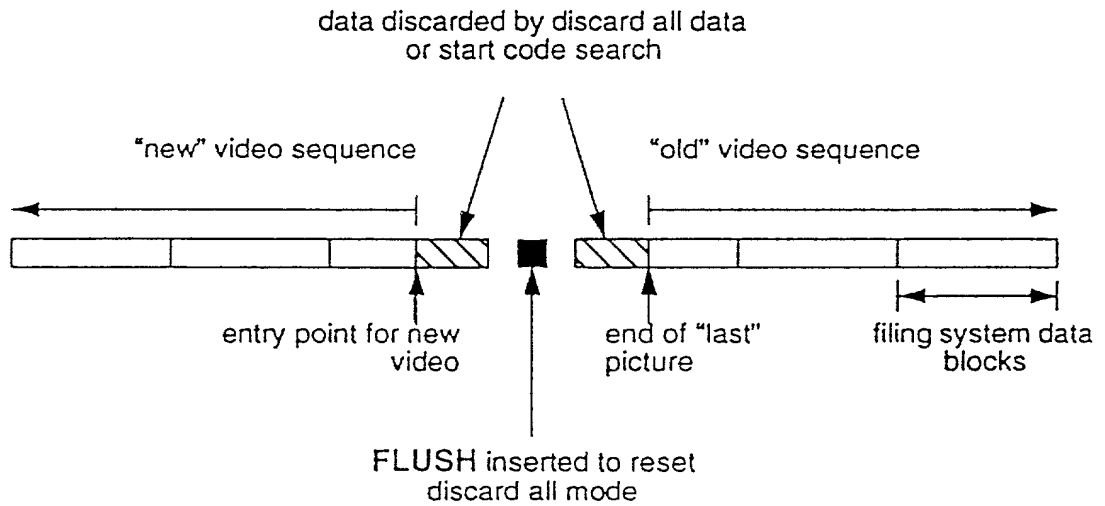


FIG.66

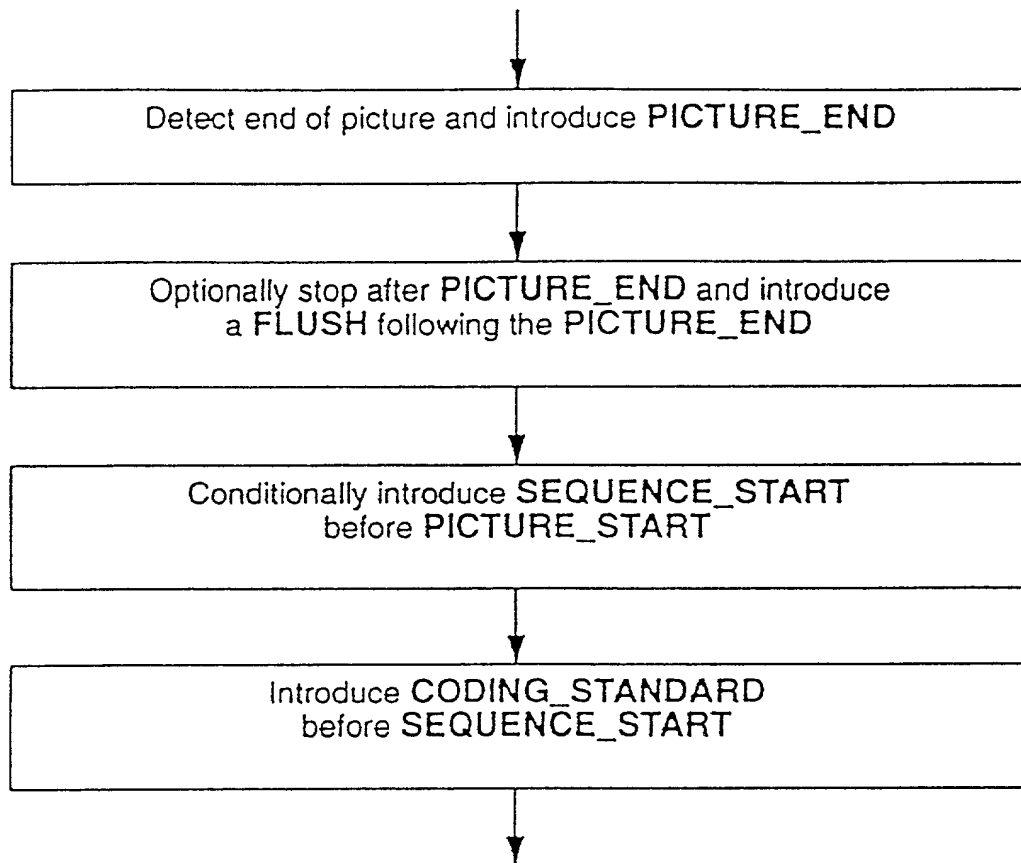


FIG.67

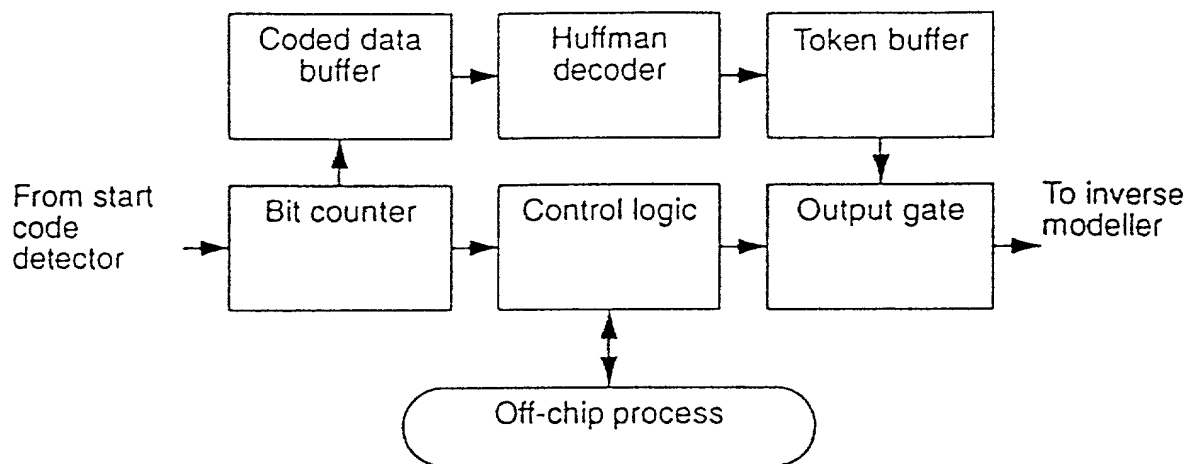


FIG.68

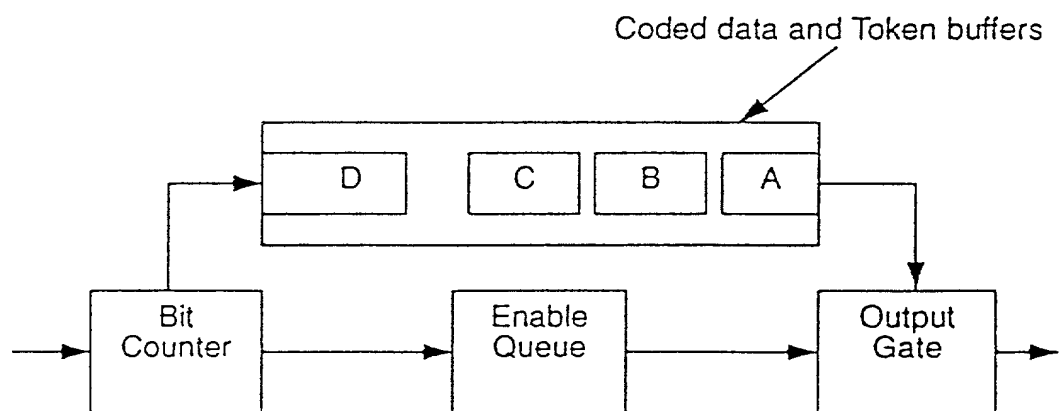


FIG.69

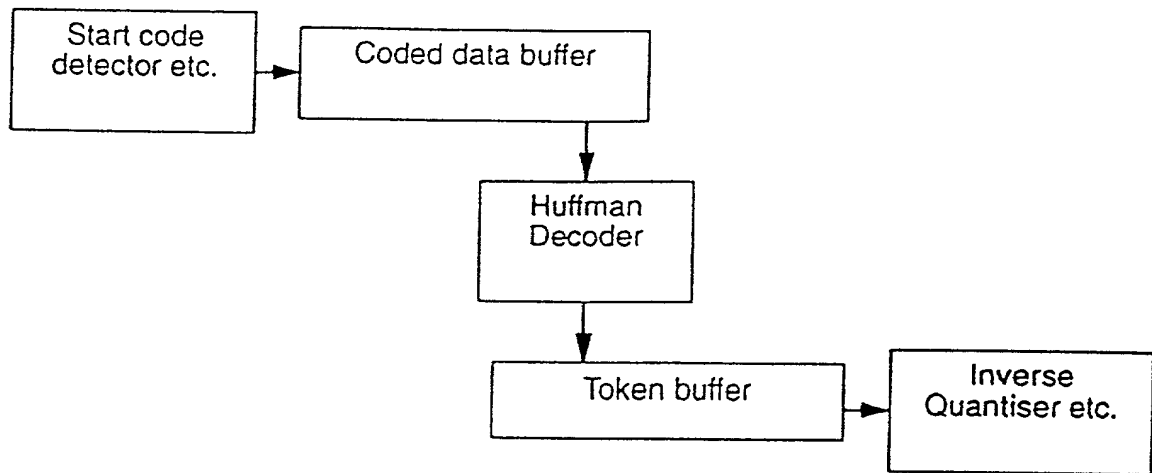


FIG.70

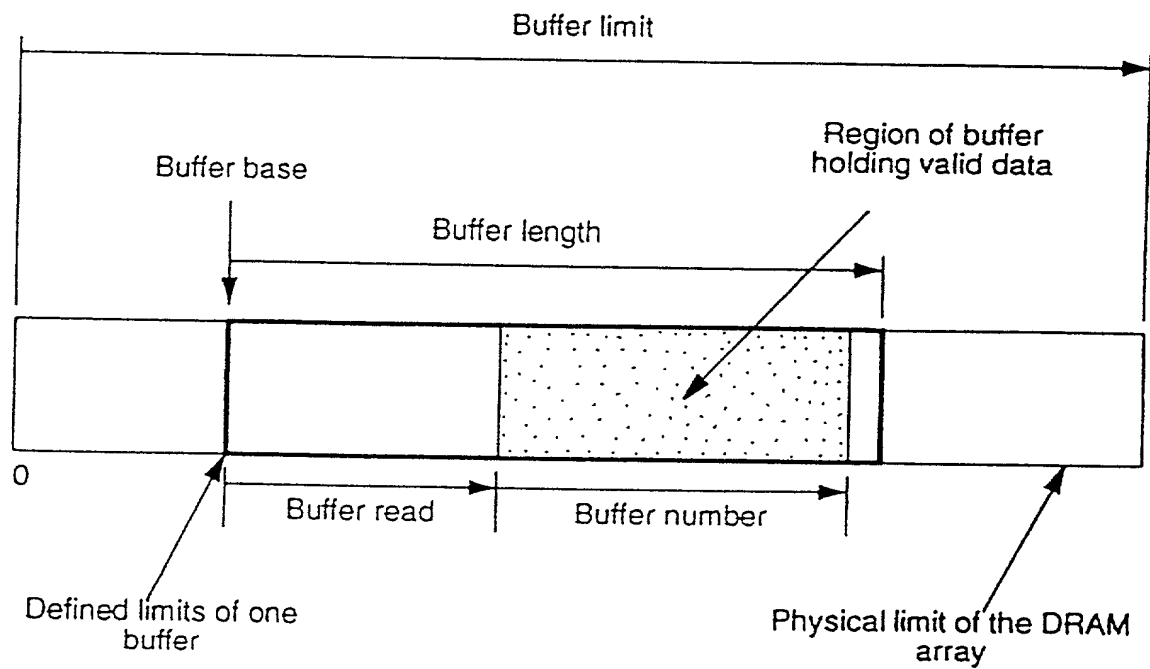


FIG.71

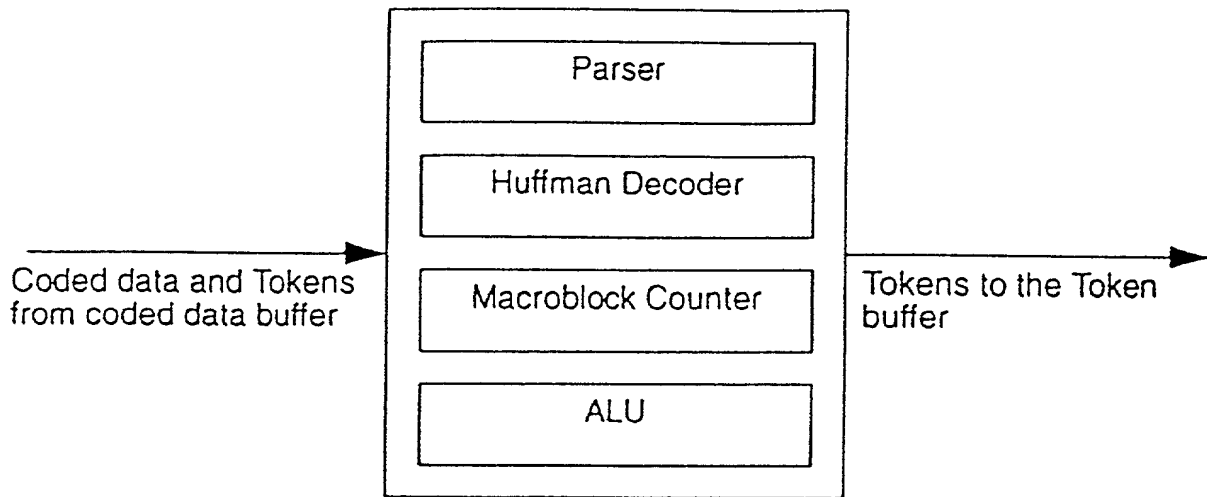


FIG.72

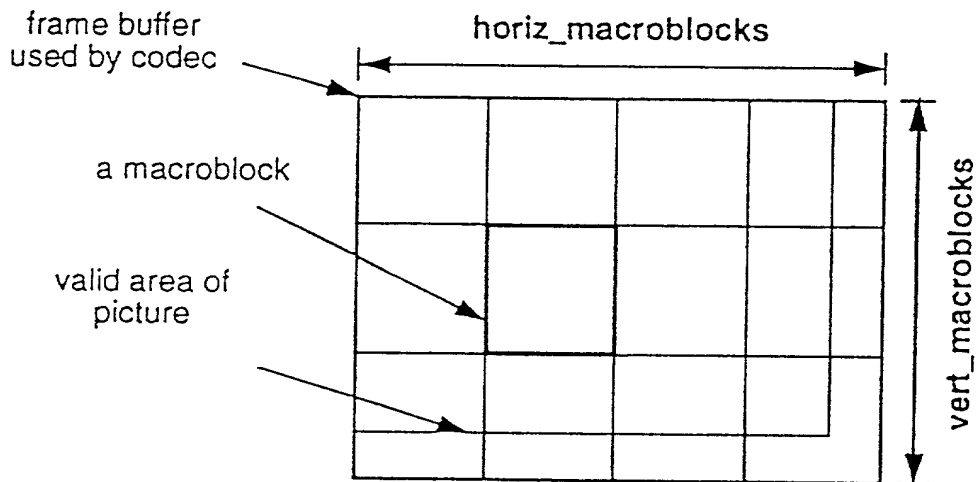


FIG.73

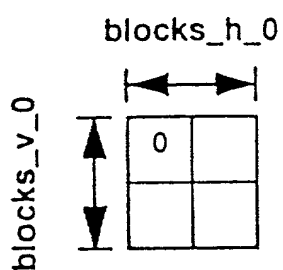


FIG.74A

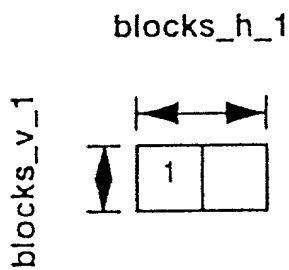


FIG.74B

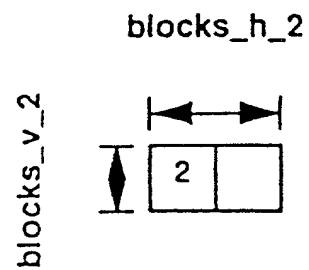


FIG.74C

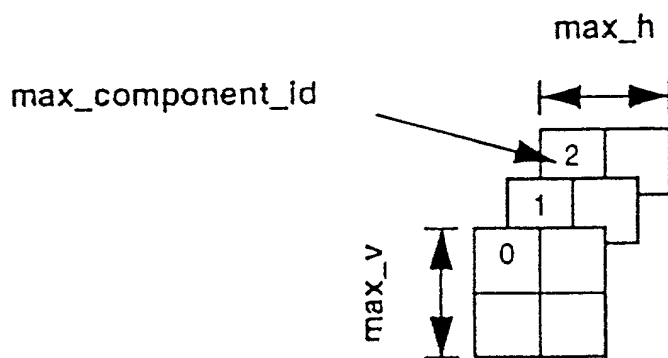


FIG.74D

$$\left\{ \begin{array}{l} \text{horiz_macroblocks} = \frac{\text{horiz_pels} + 15}{16} \\ \text{vert_macroblocks} = \frac{\text{vert_pels} + 15}{16} \end{array} \right.$$

FIG.75

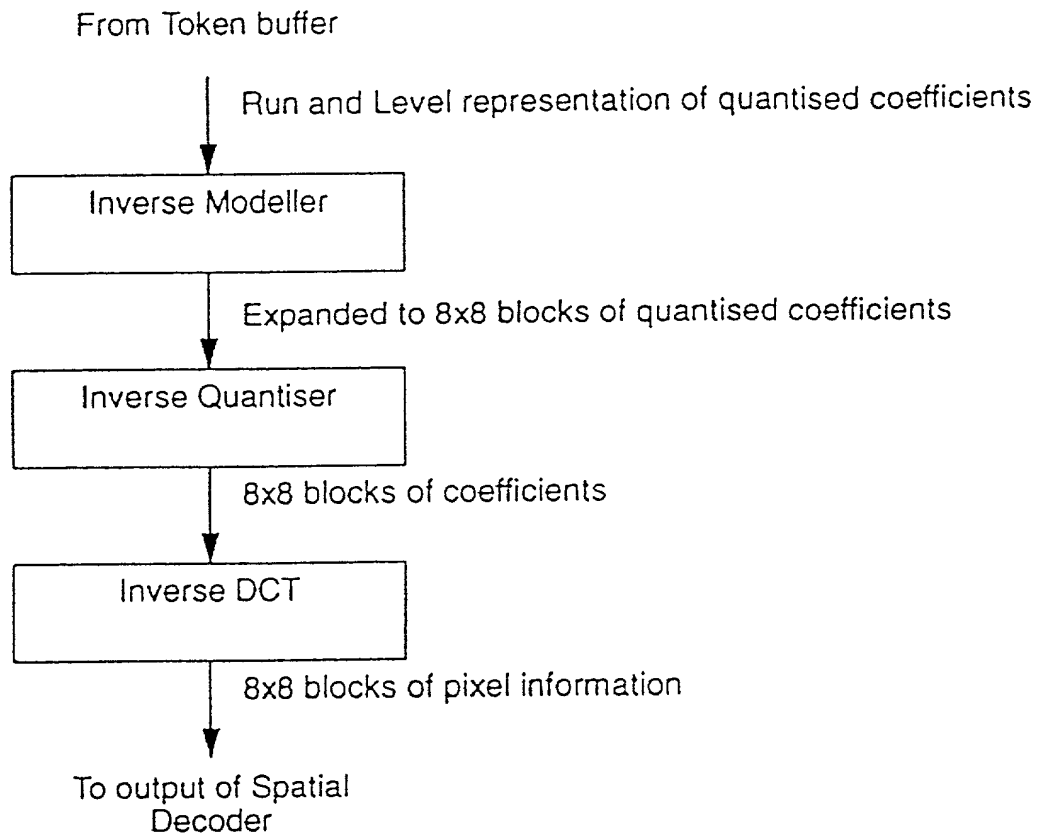


FIG.76

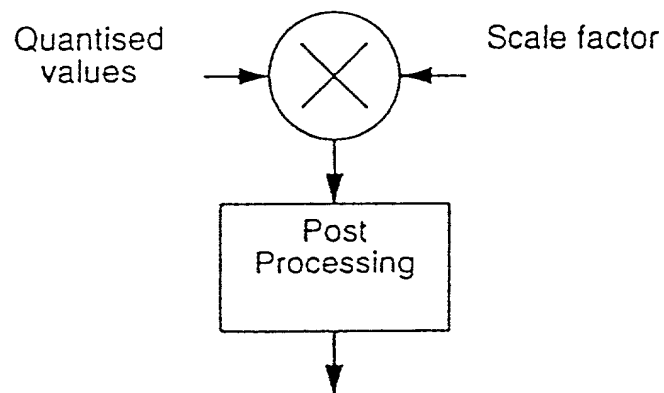


FIG.77

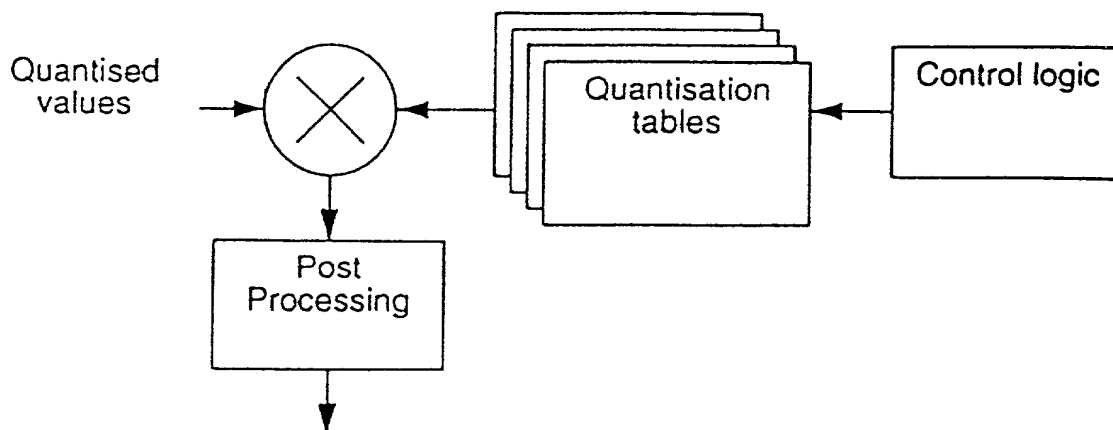


FIG.78

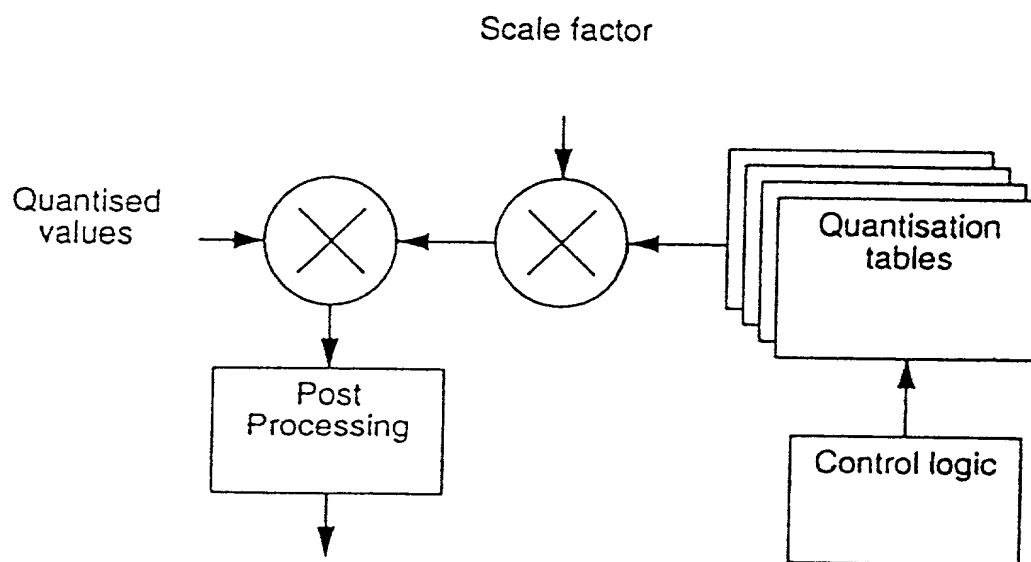


FIG.79

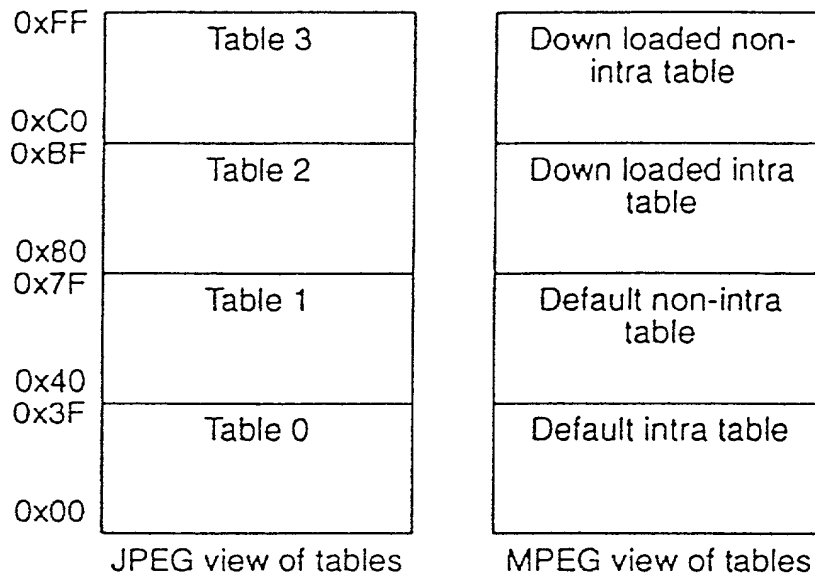


FIG.80

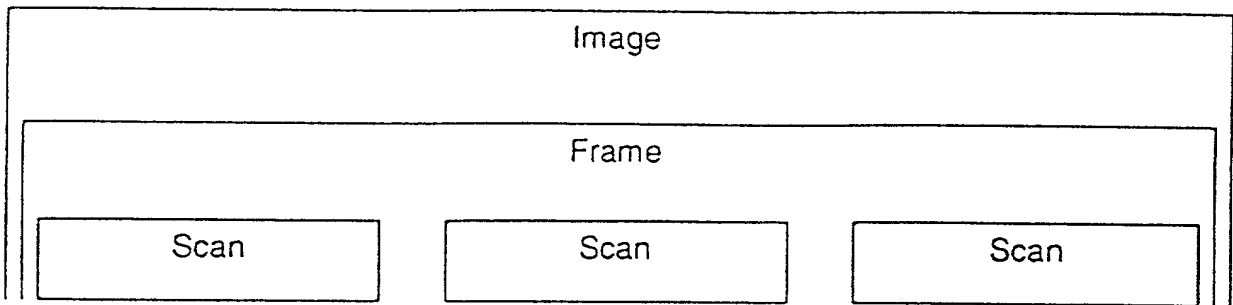


FIG.81

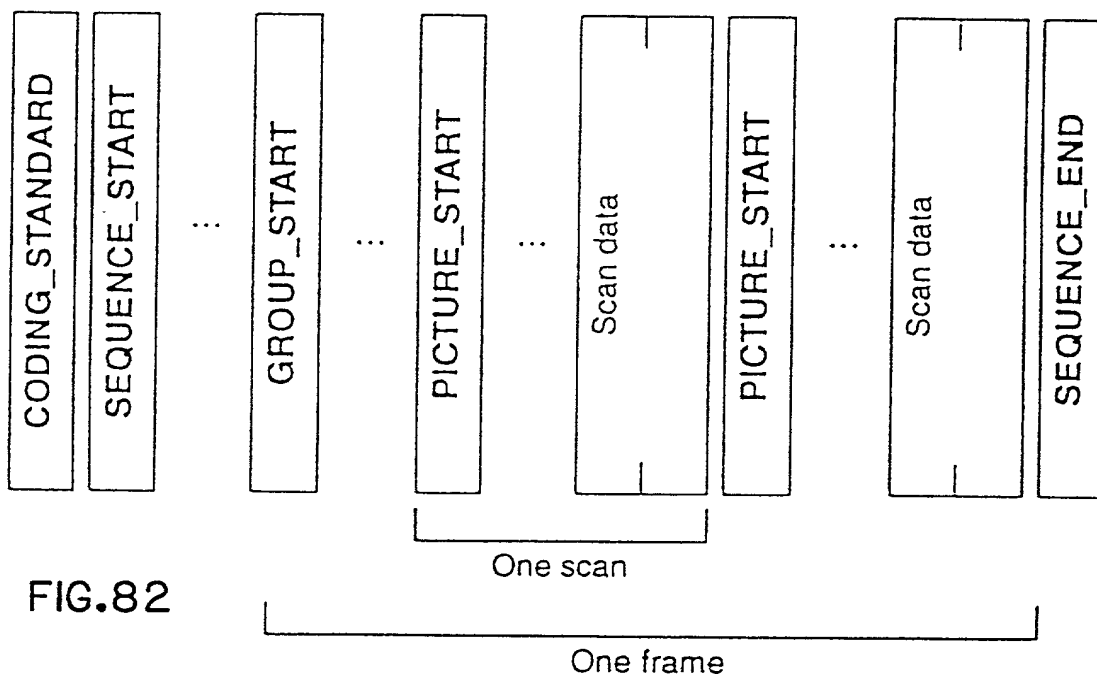


FIG.82

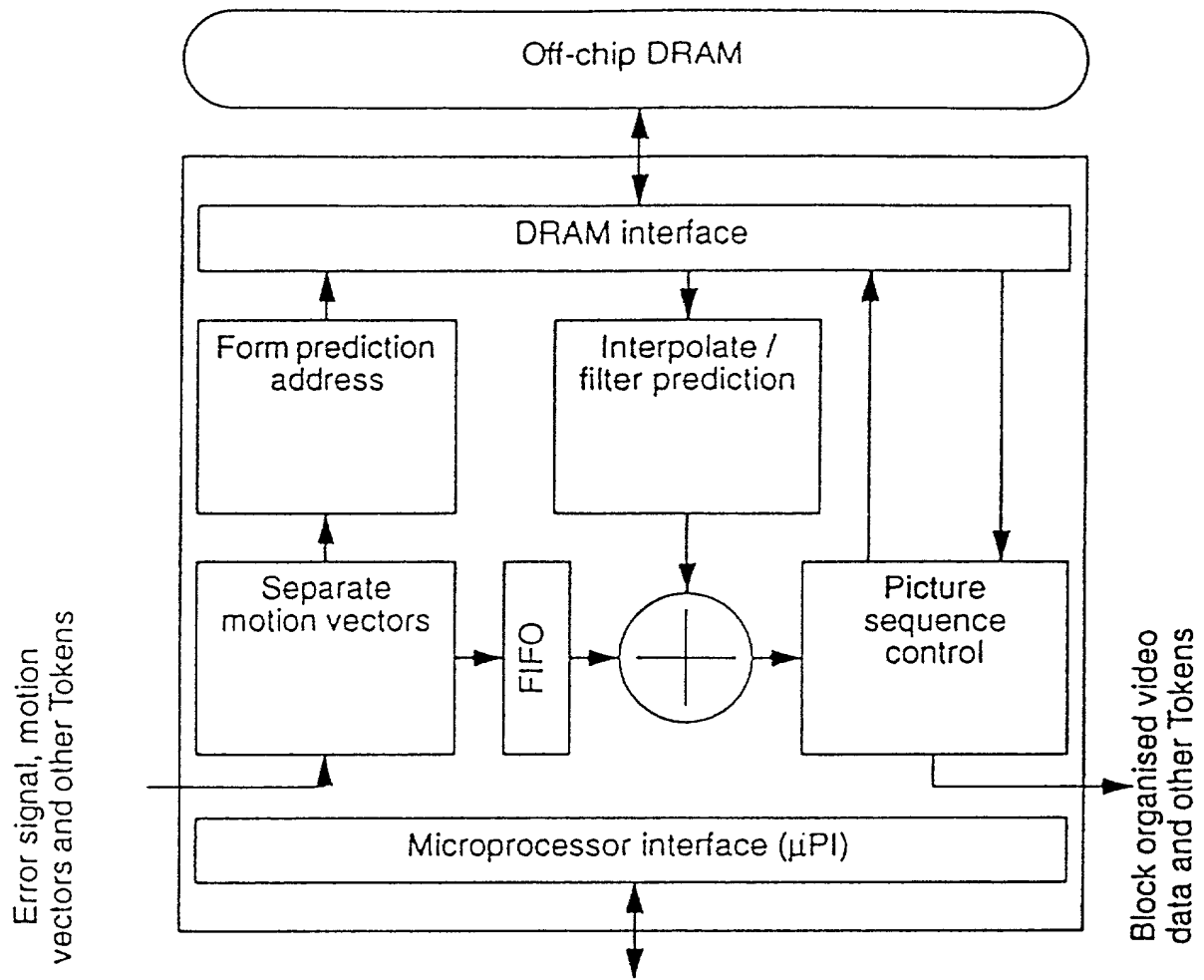


FIG.83

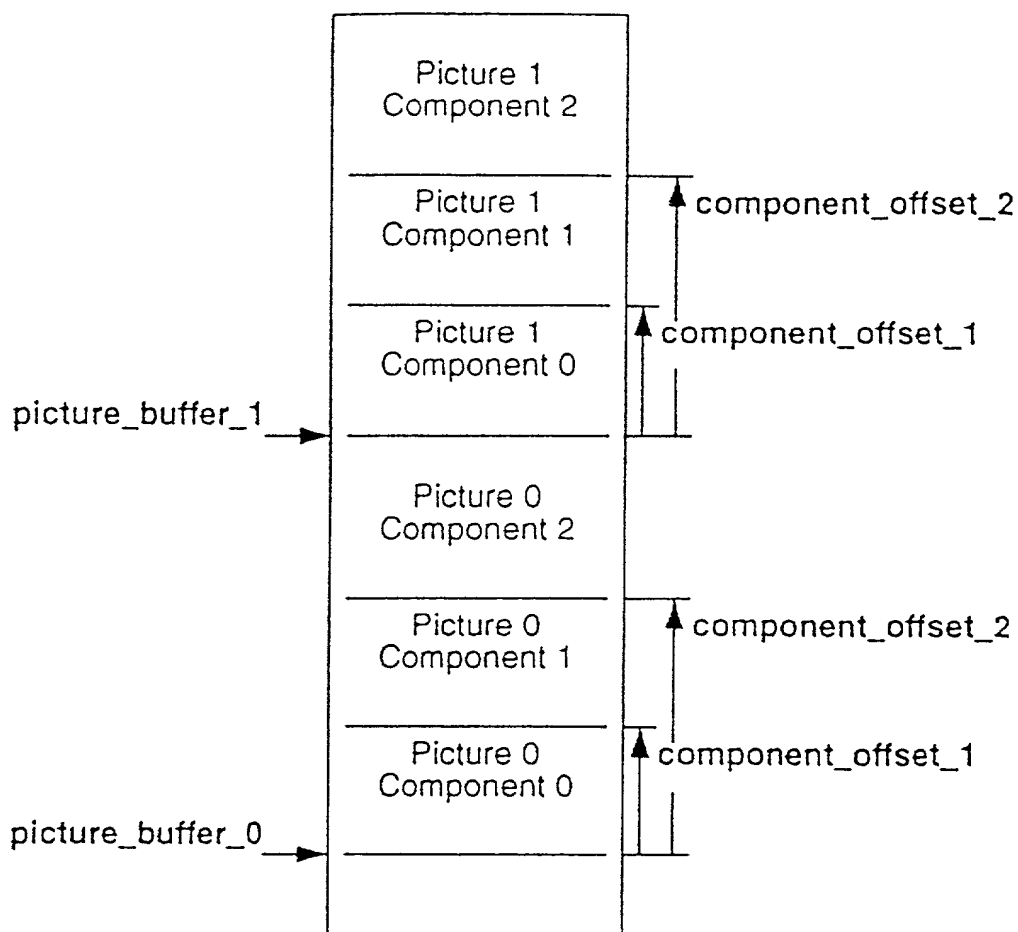


FIG.84

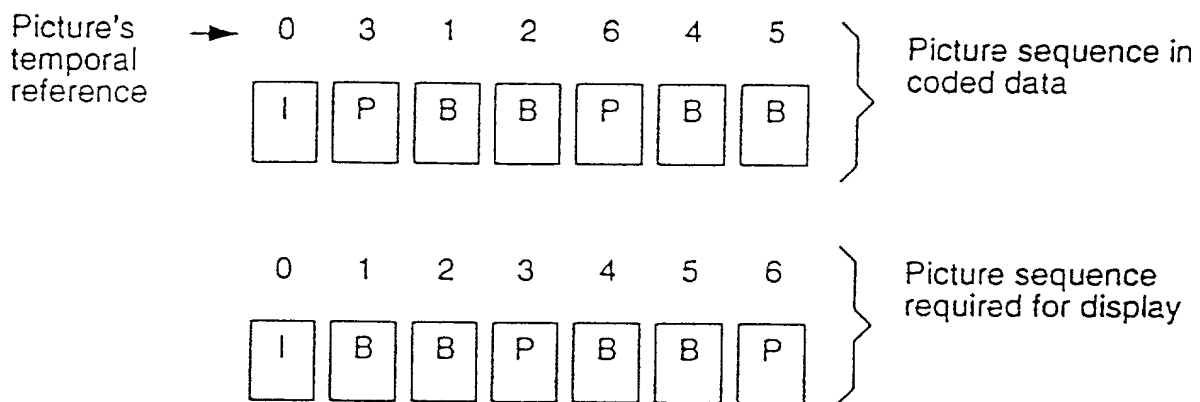


FIG.85

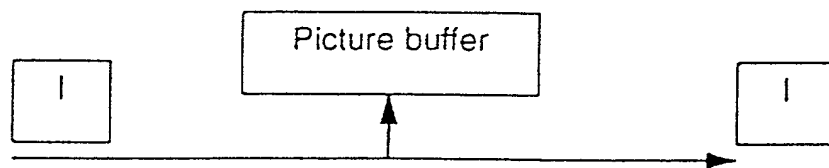


FIG.86

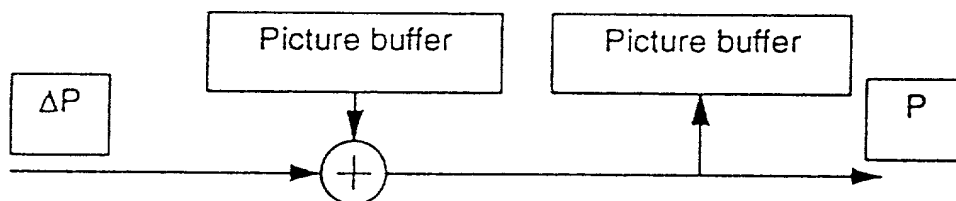


FIG.87

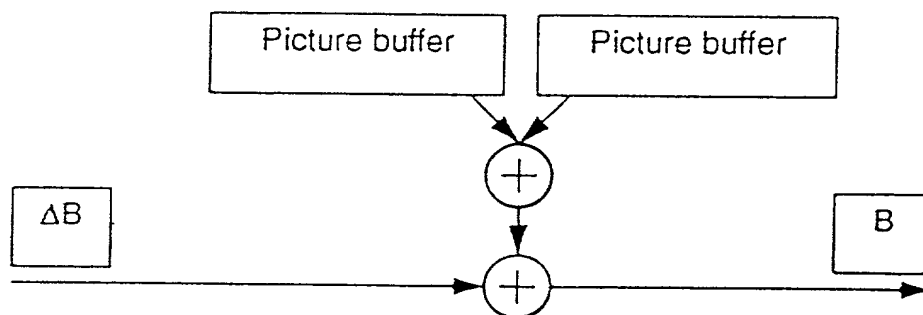


FIG.88

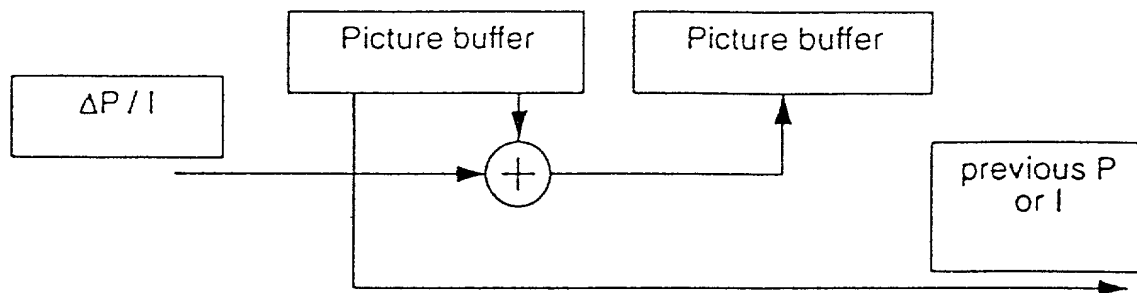


FIG.89

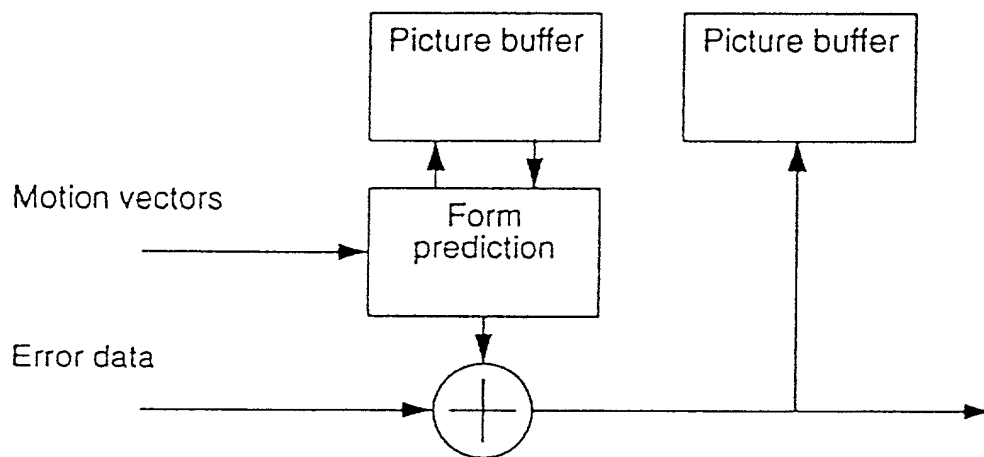


FIG.90

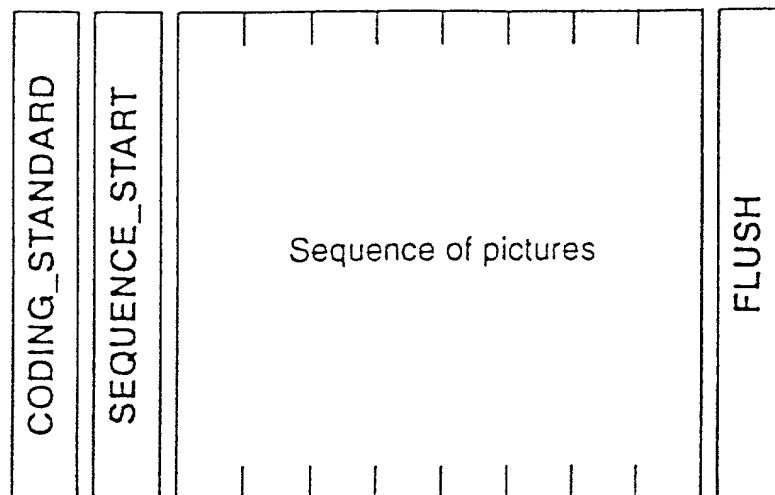


FIG.91

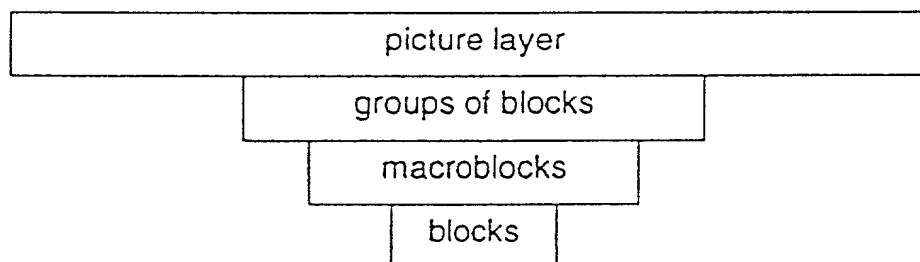


FIG.92

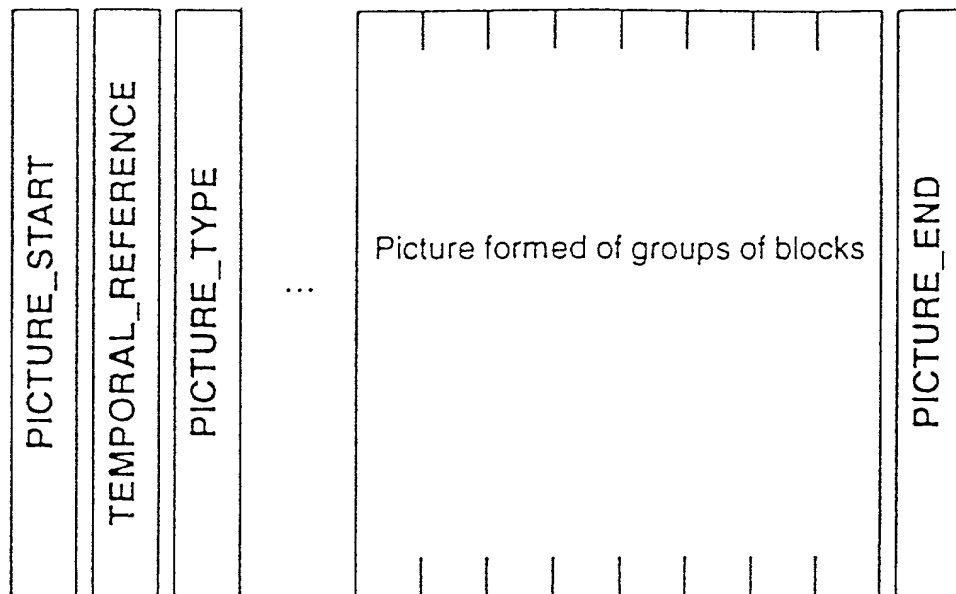


FIG.93

CIF		QCIF	
0	1	0	
2	3	2	
4	5	4	
6	7		
8	9		
10	11		

FIG.94

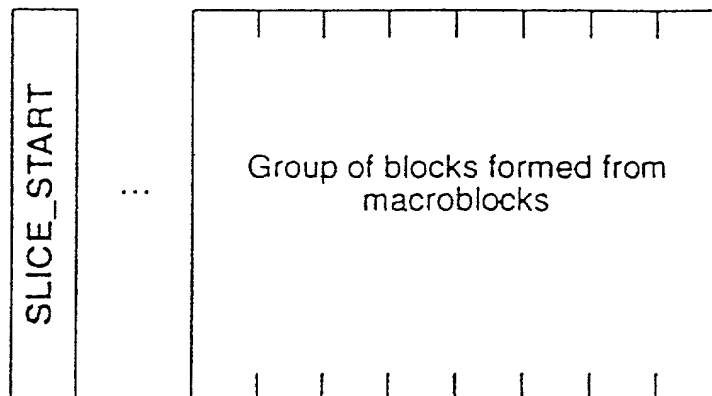


FIG.95

1	2	3	4	5	6	7	8	9	10	11
12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33

FIG.96

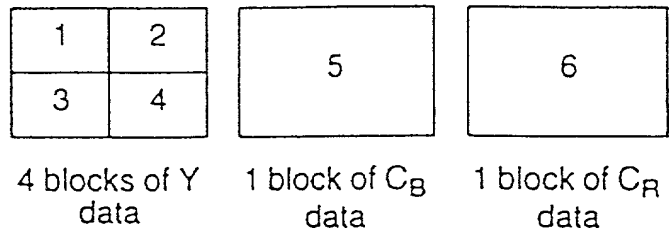


FIG.97

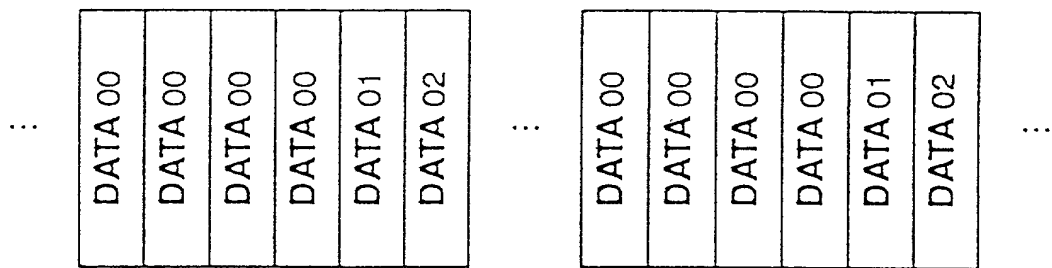


FIG.98

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
...							
59	58	59	60	61	62	63	64

FIG.99

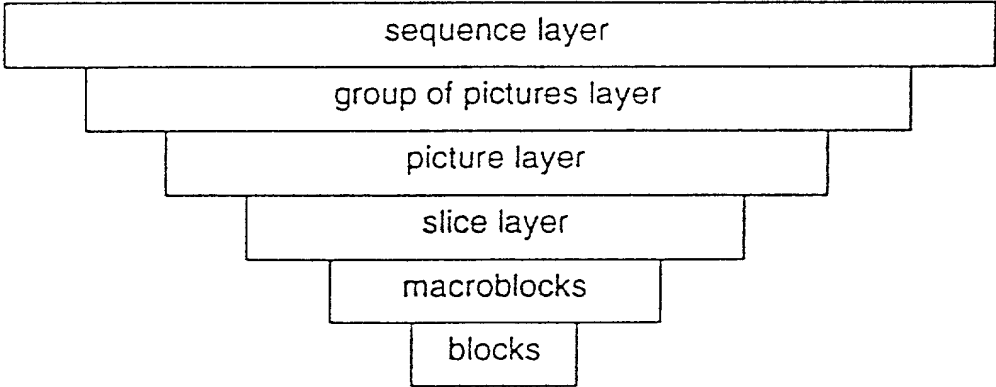


FIG. 1 00

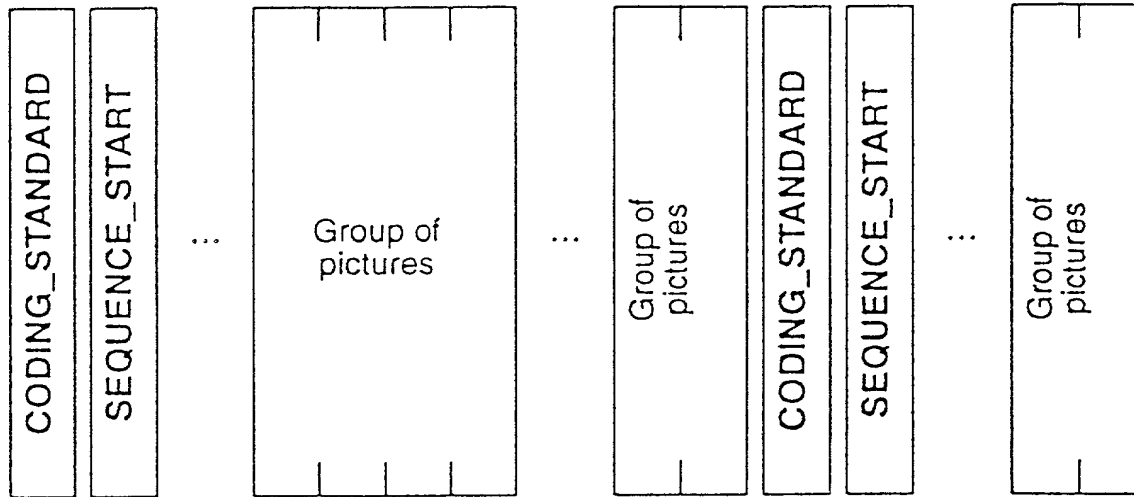


FIG. 101

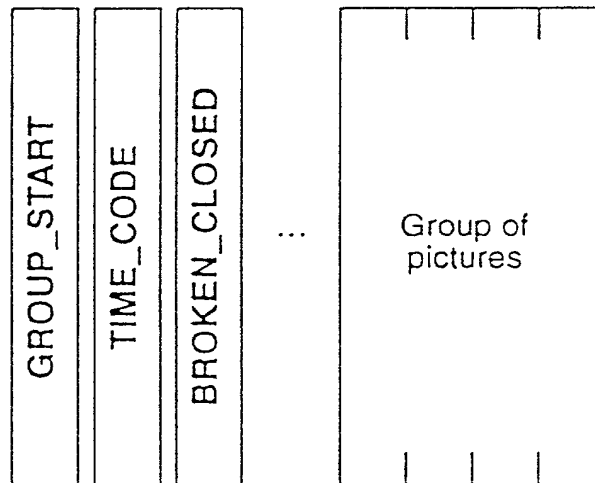


FIG. 102

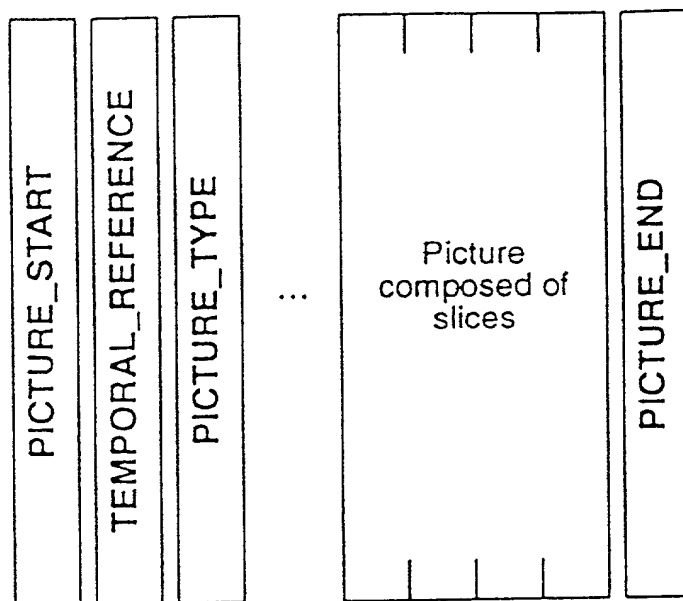


FIG. 103

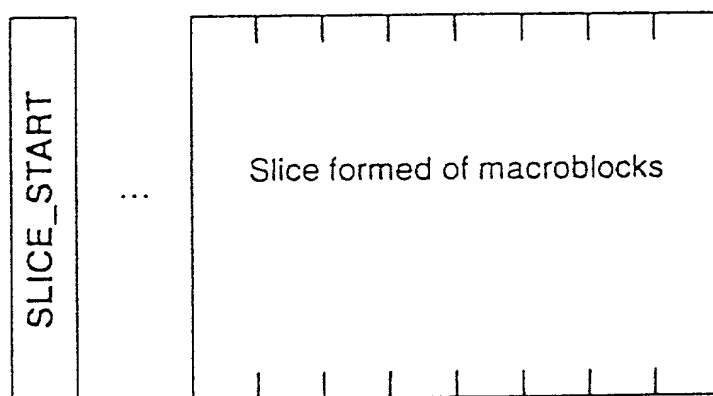


FIG. 104

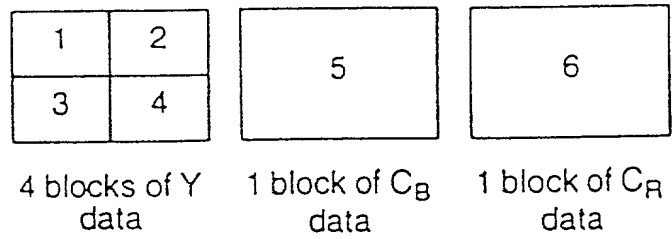


FIG. 105

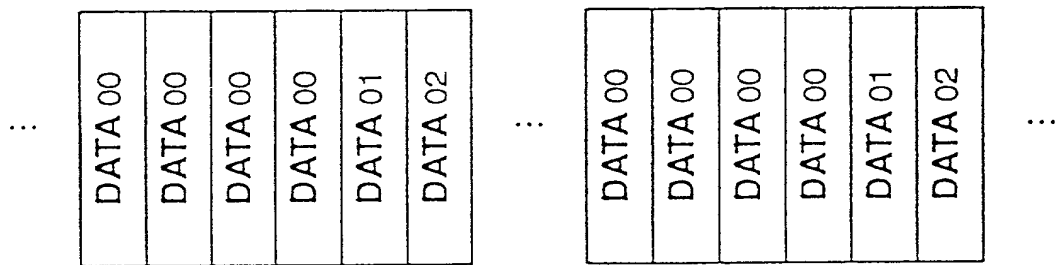


FIG. 106

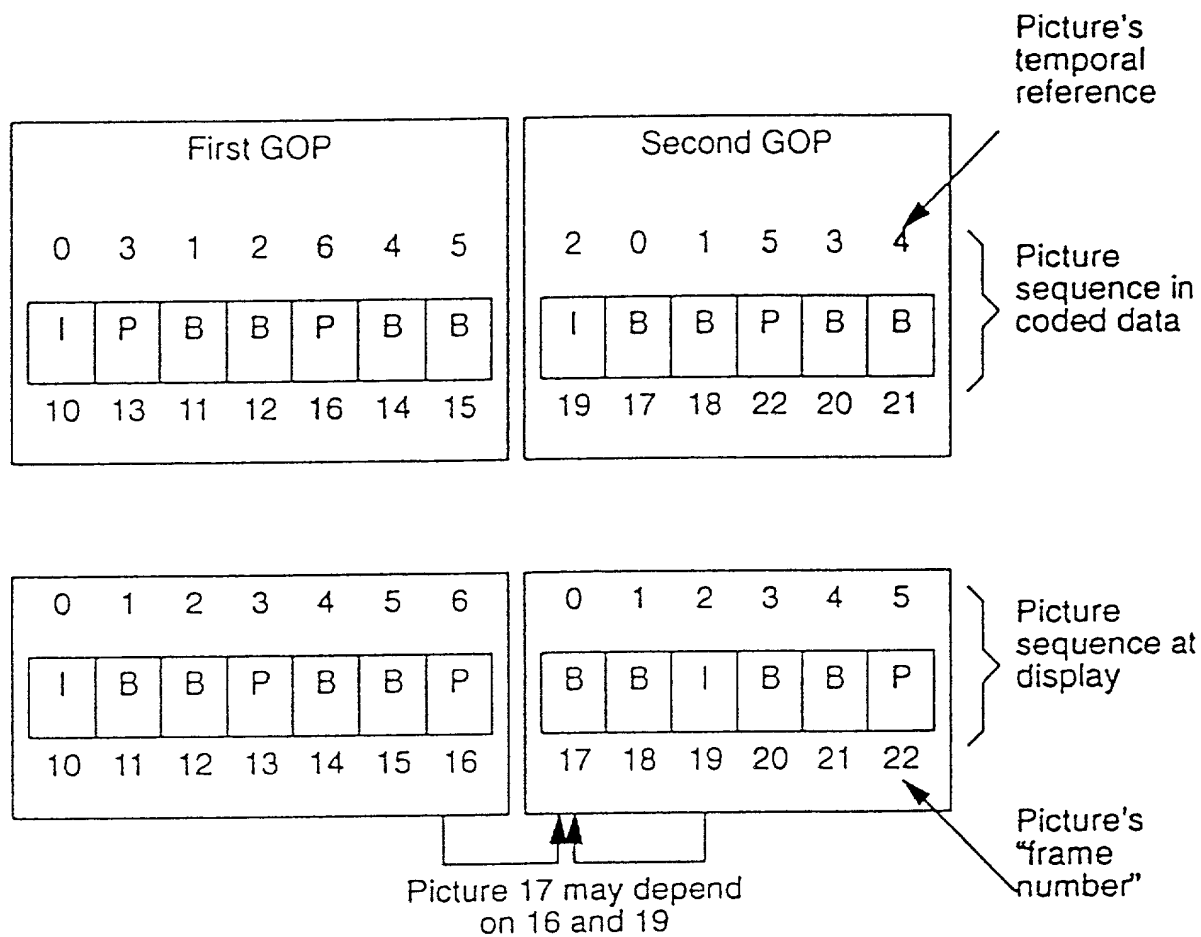


FIG. 107



FIG. I 08

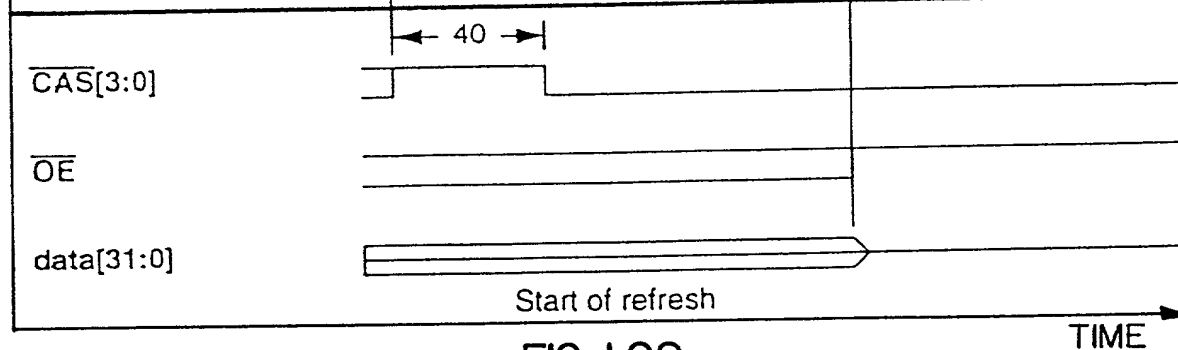
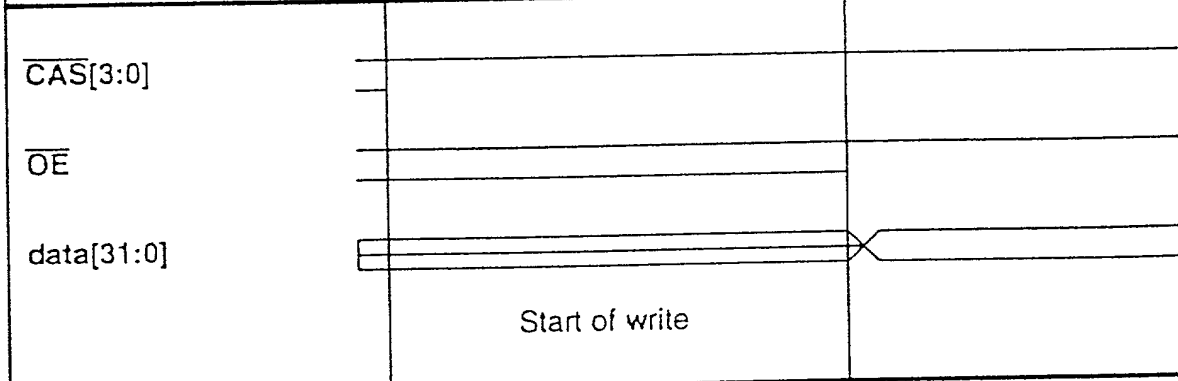
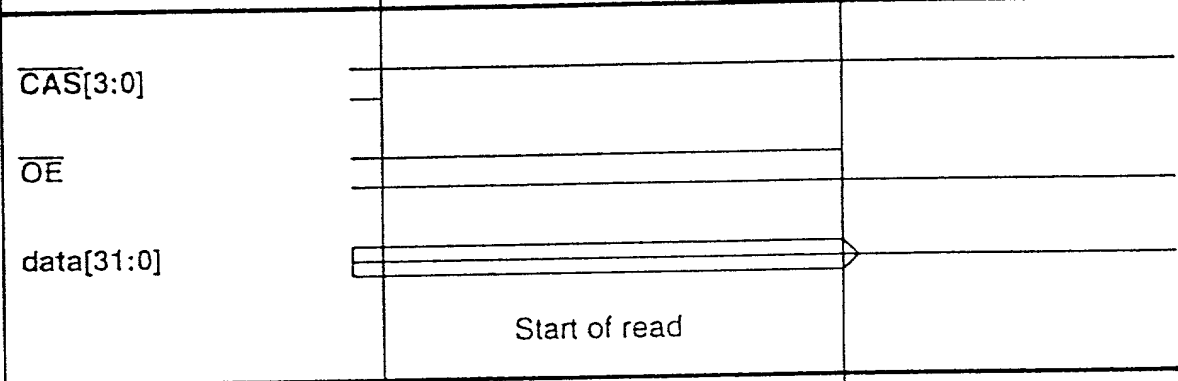
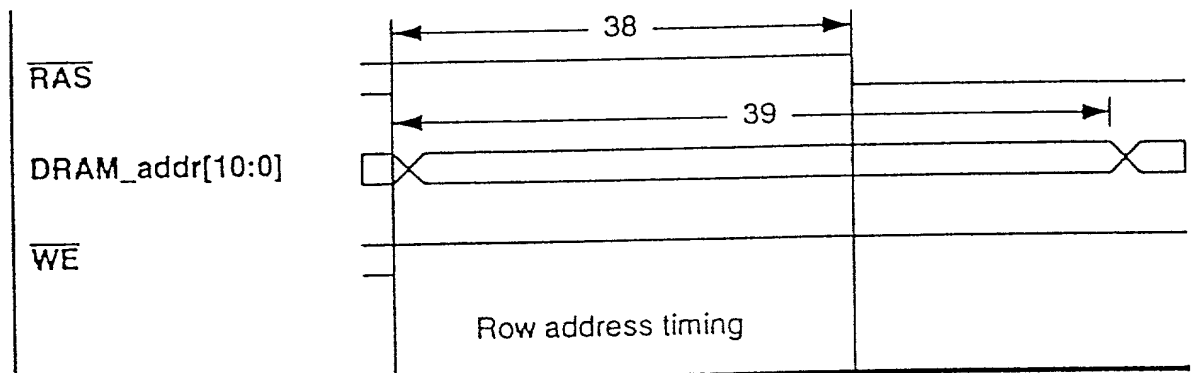


FIG. I 09

TIME

0377644 02004
T06020 T400260

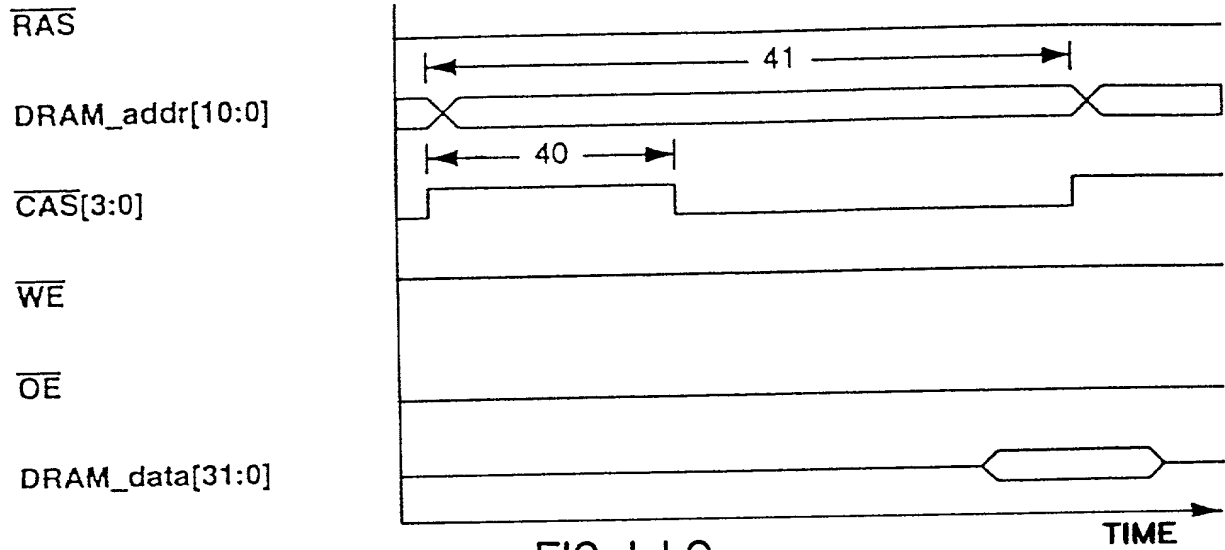


FIG. 110

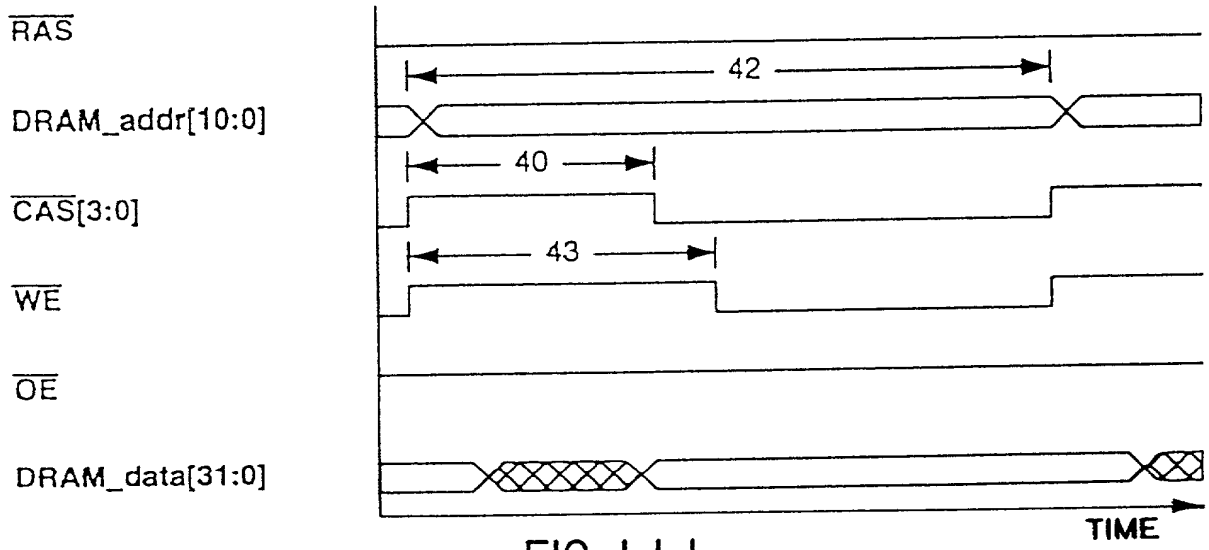


FIG. 111

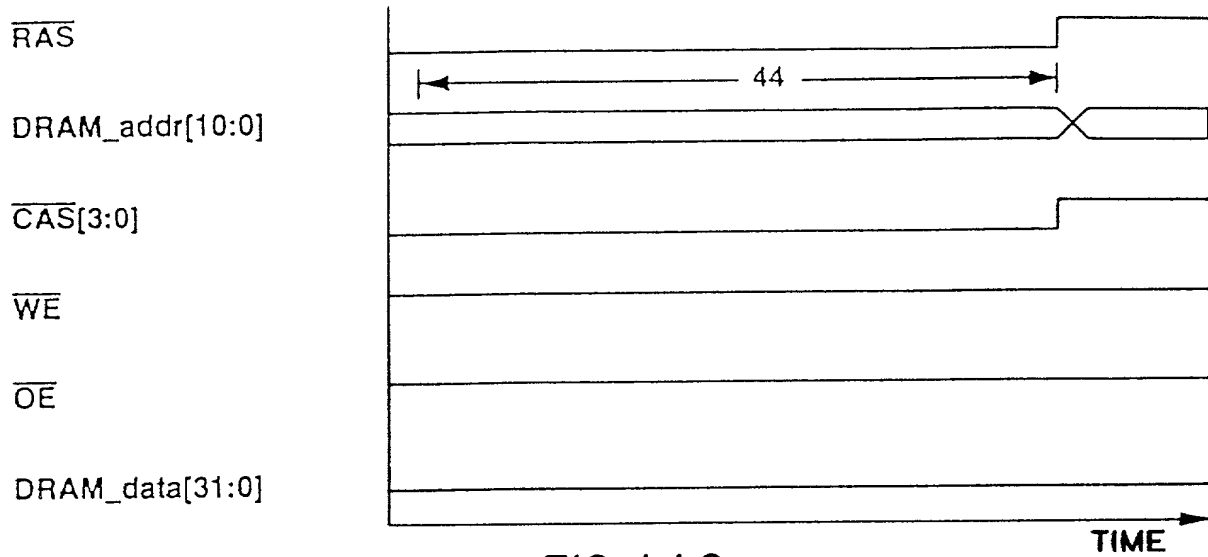


FIG. 112

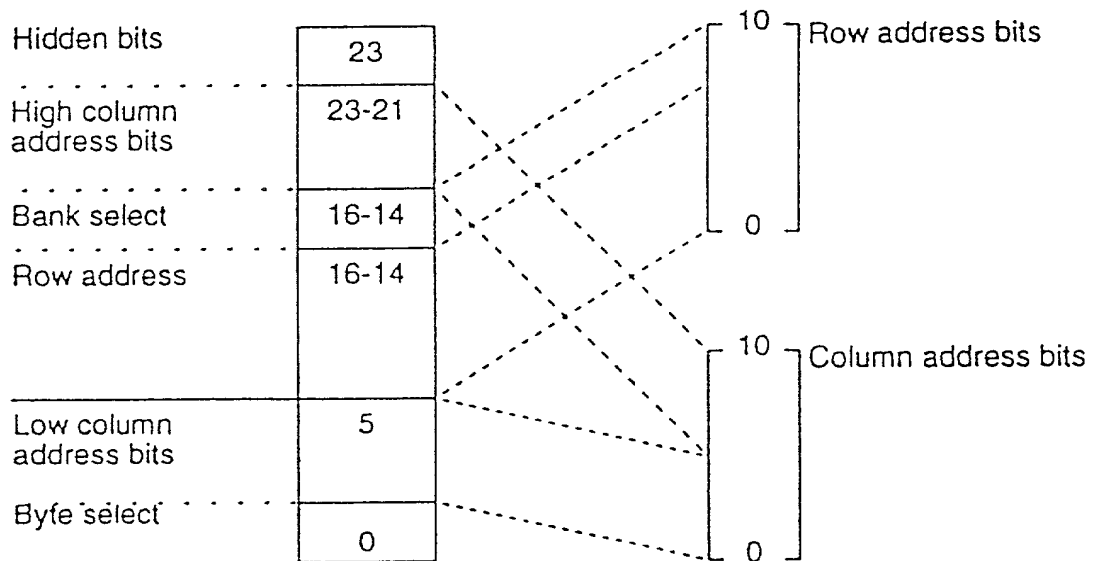


FIG. 113

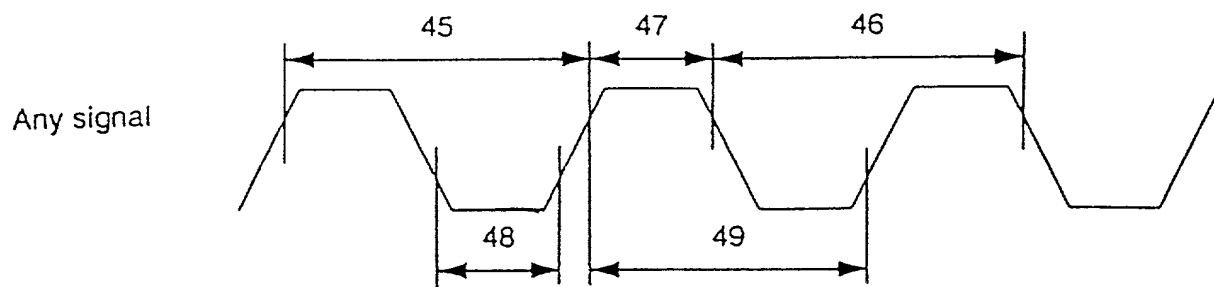


FIG. 114

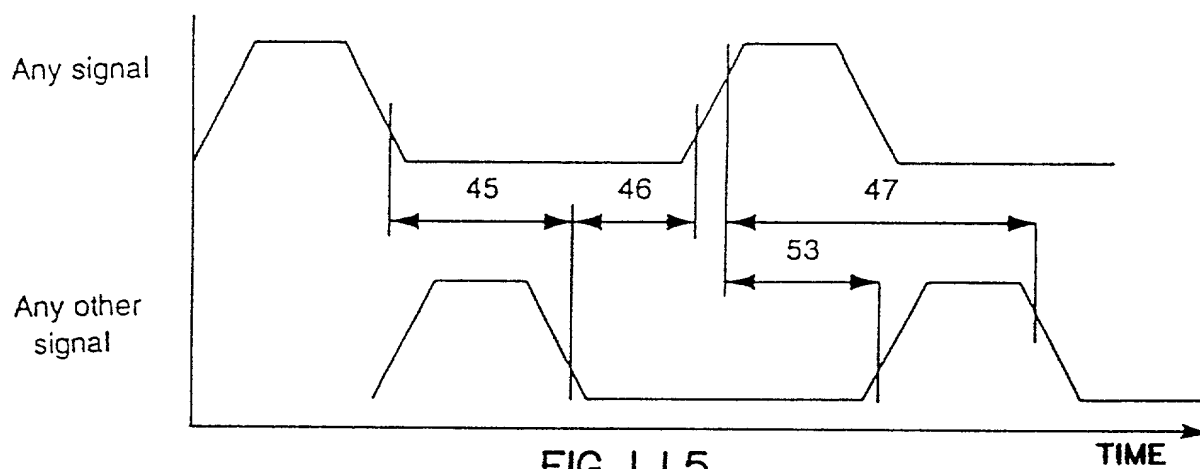
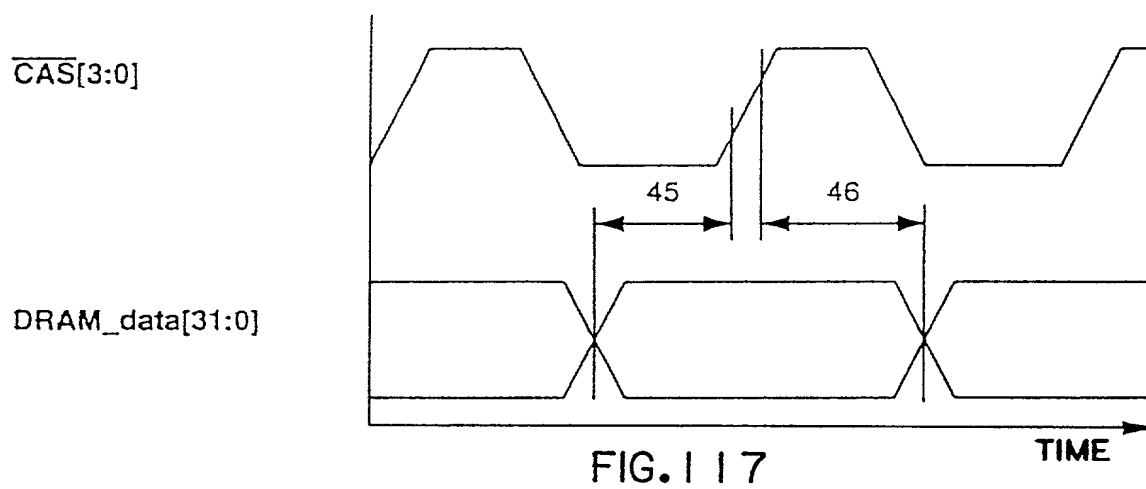


FIG. 115

09/26/04 09:50:50

TIME



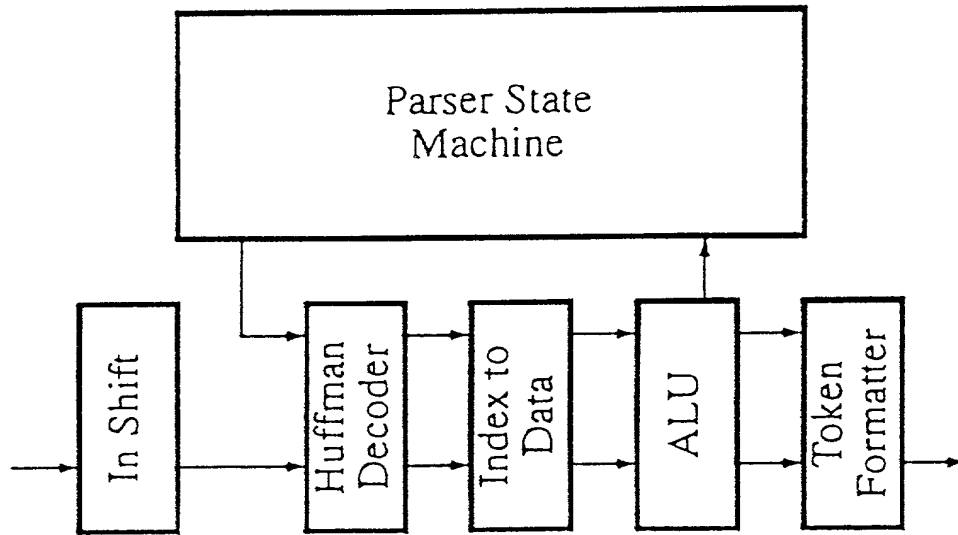


FIG. 118

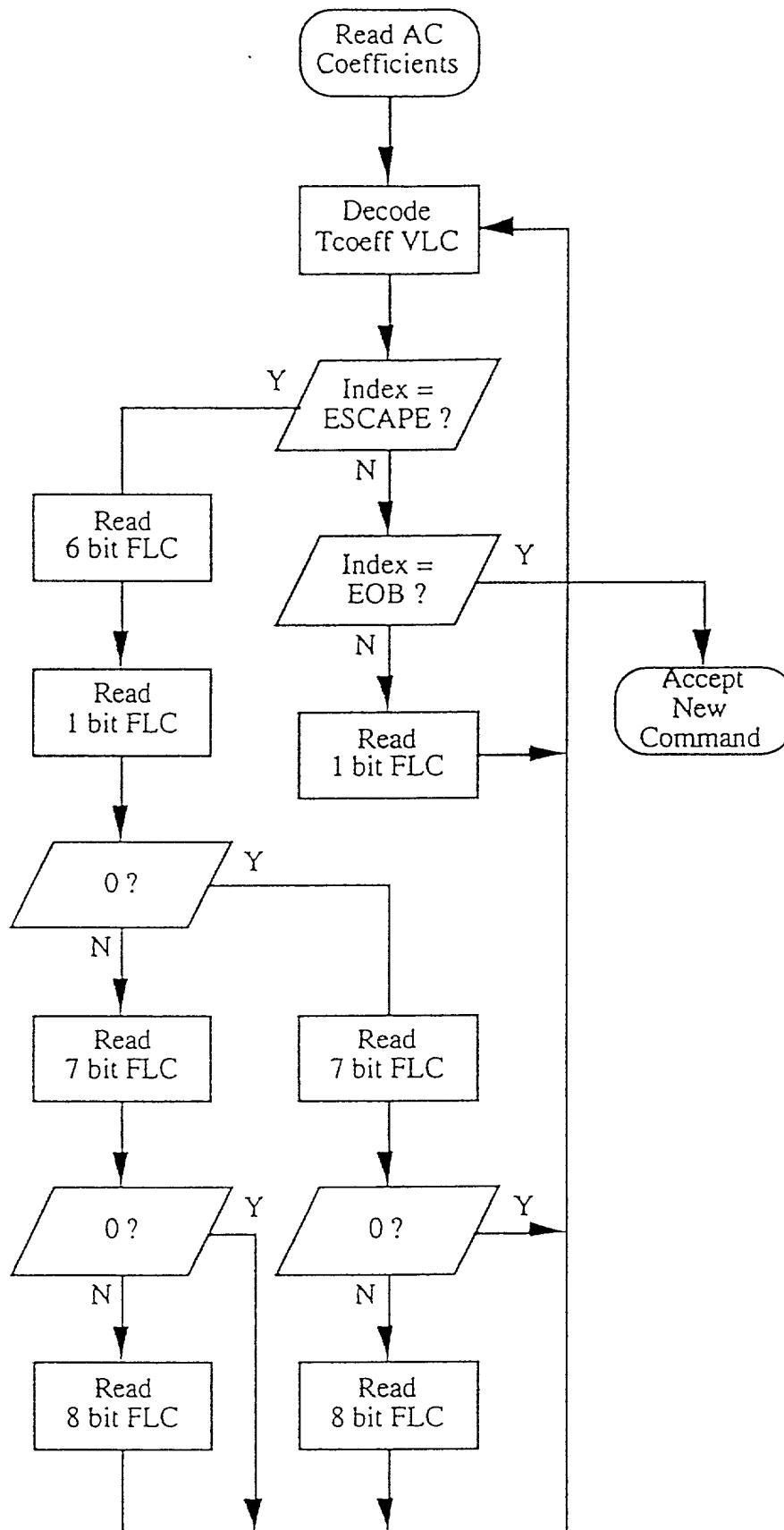


FIG. 119

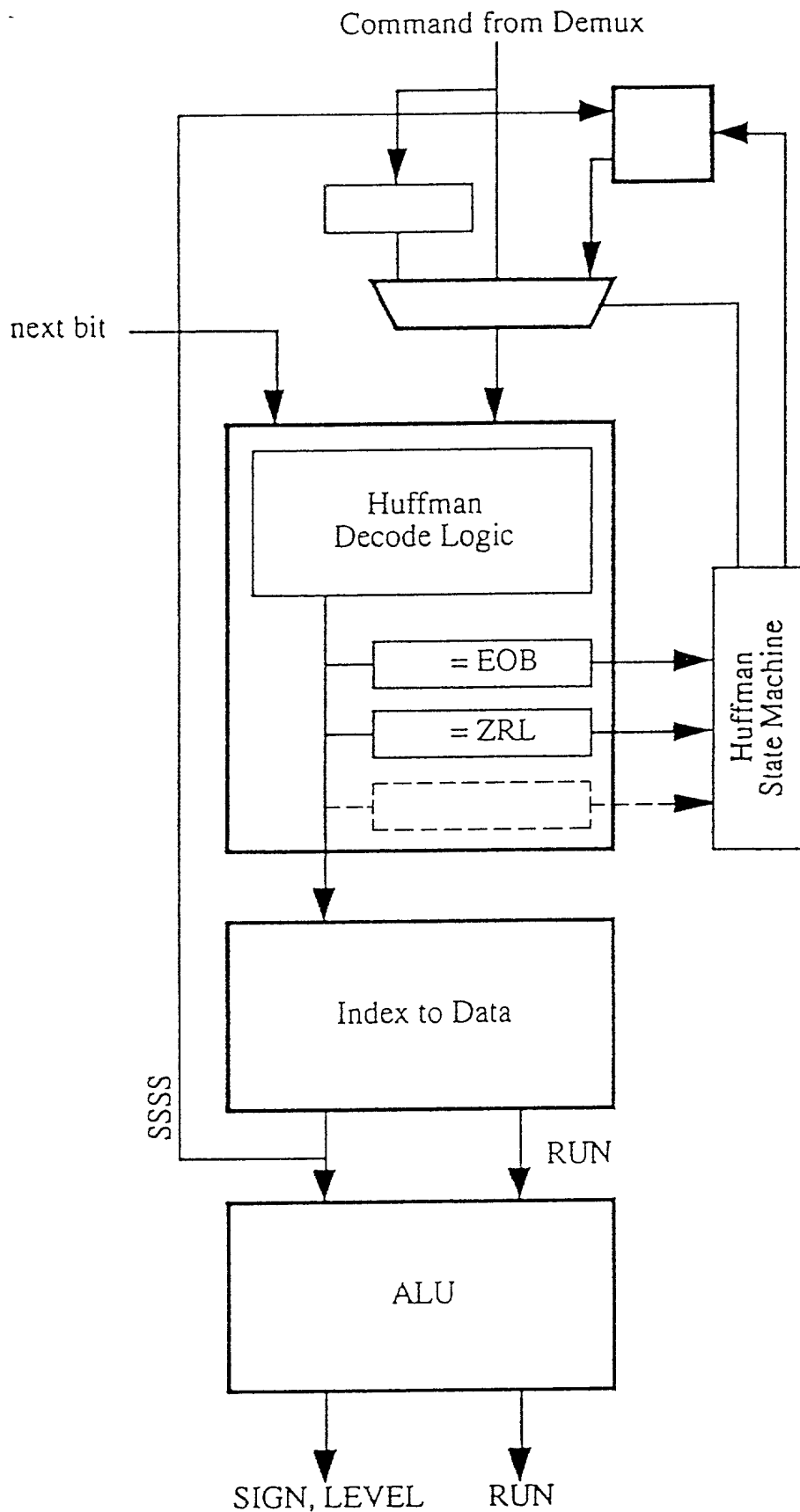


FIG. 120

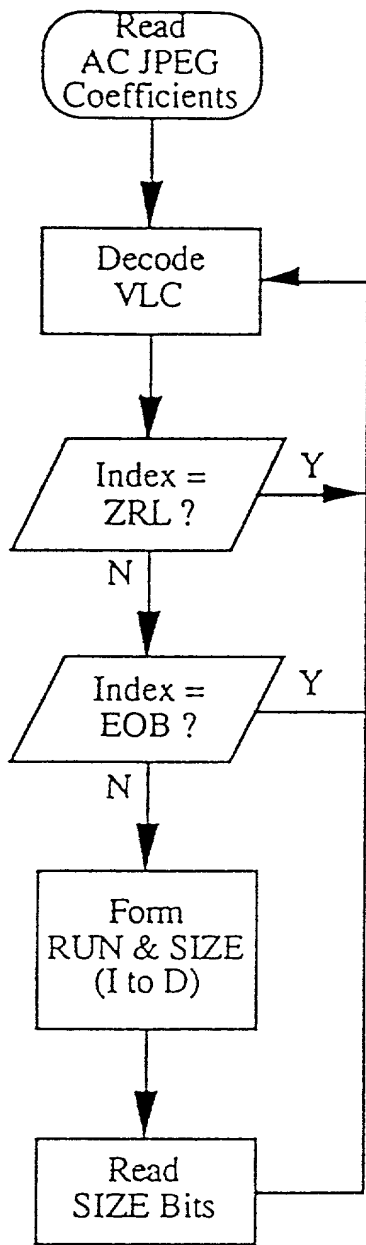


FIG. 12 | A

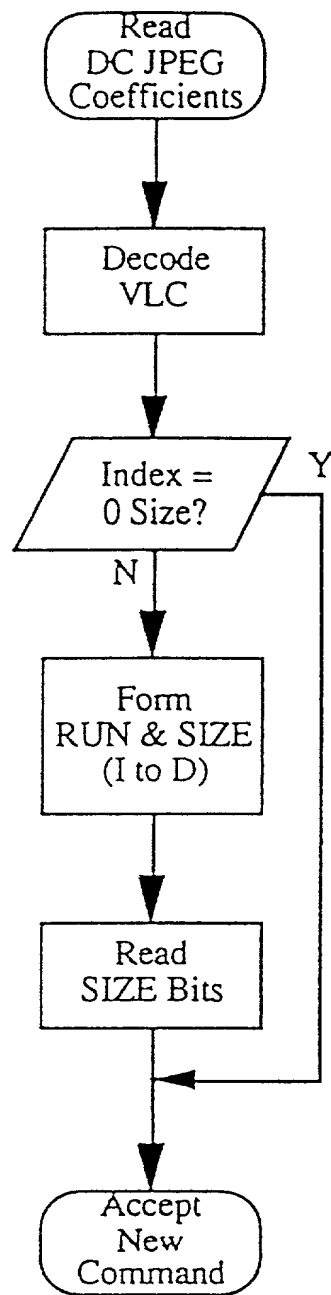


FIG. 12 | B

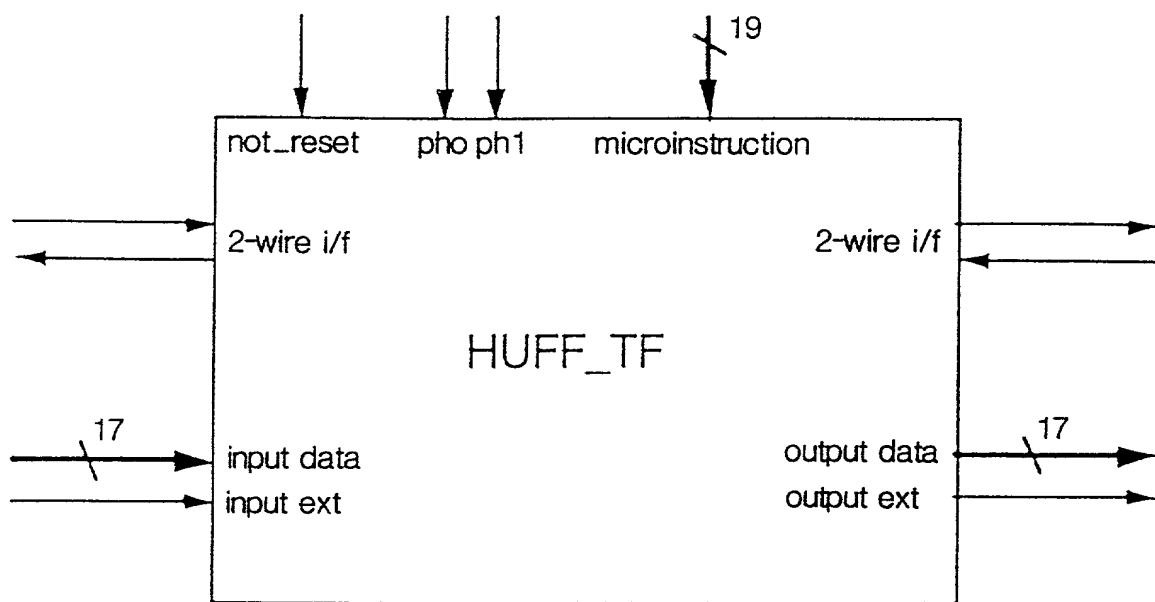


FIG. 122

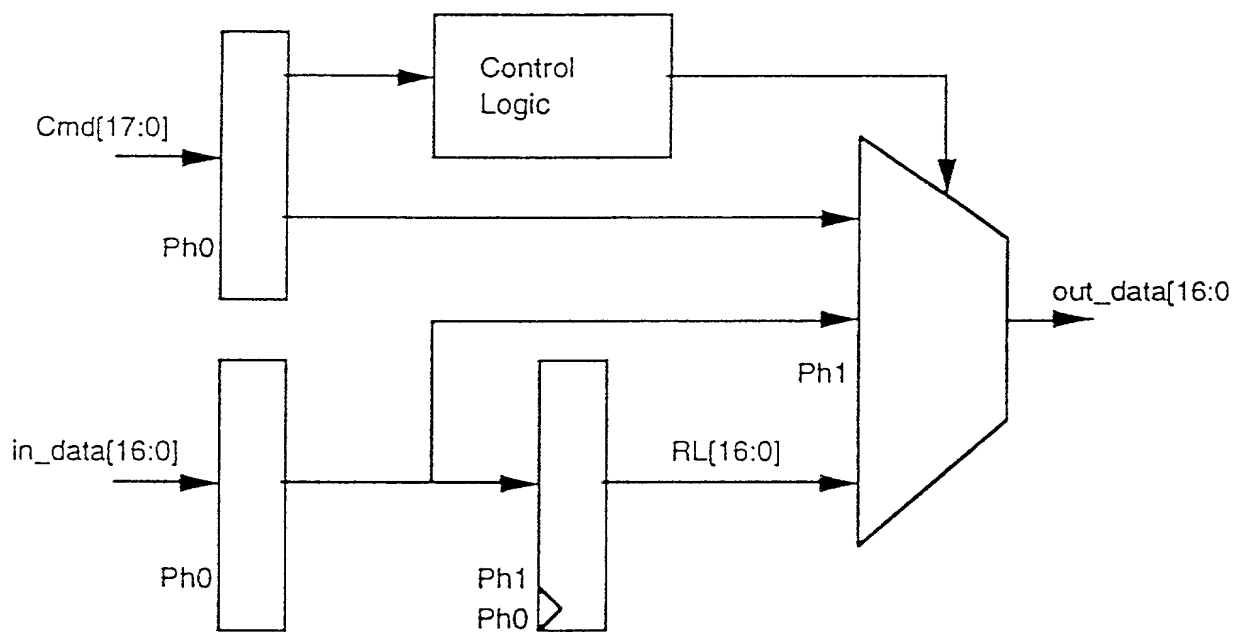


FIG. 123

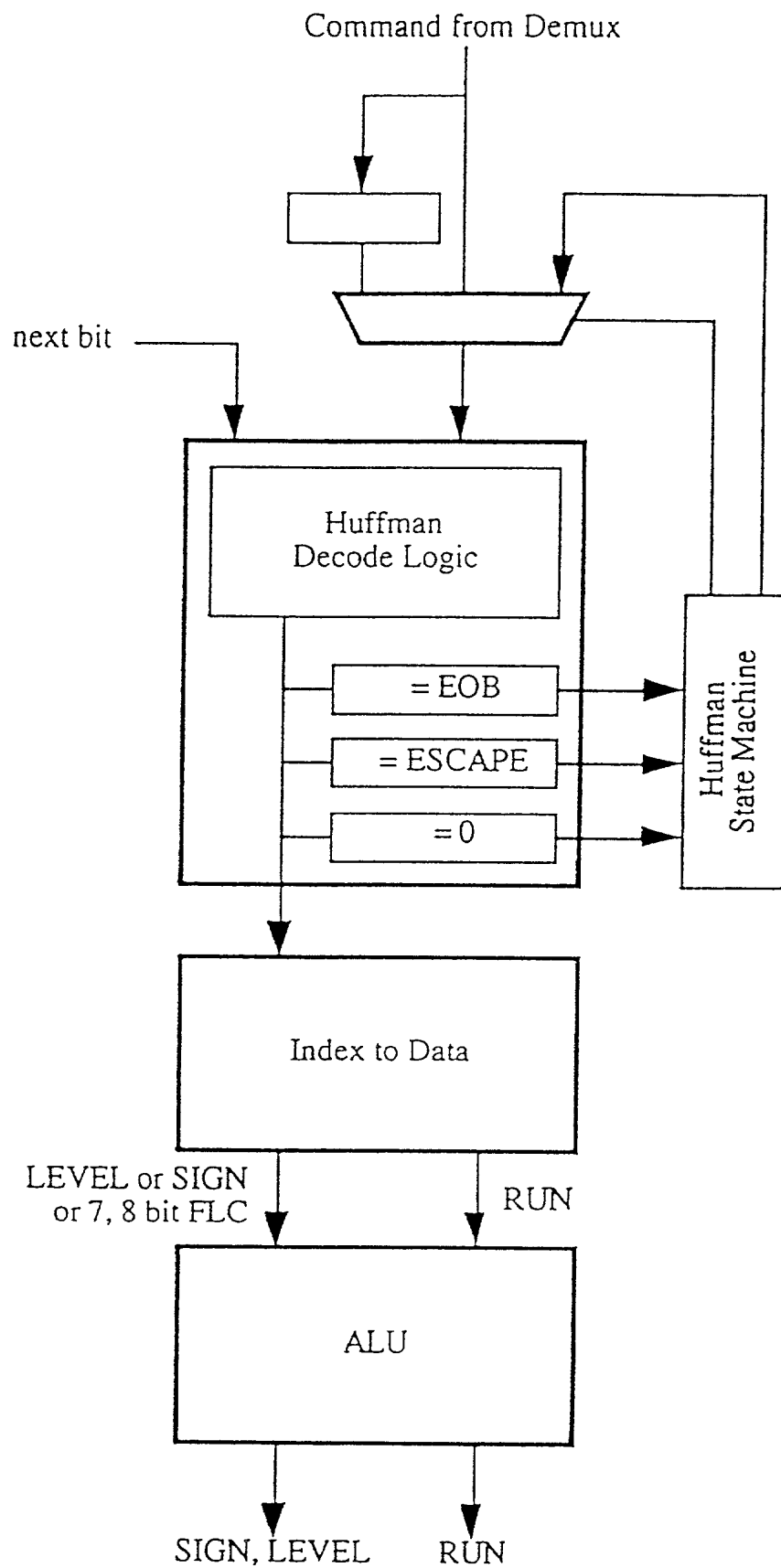


FIG. 124

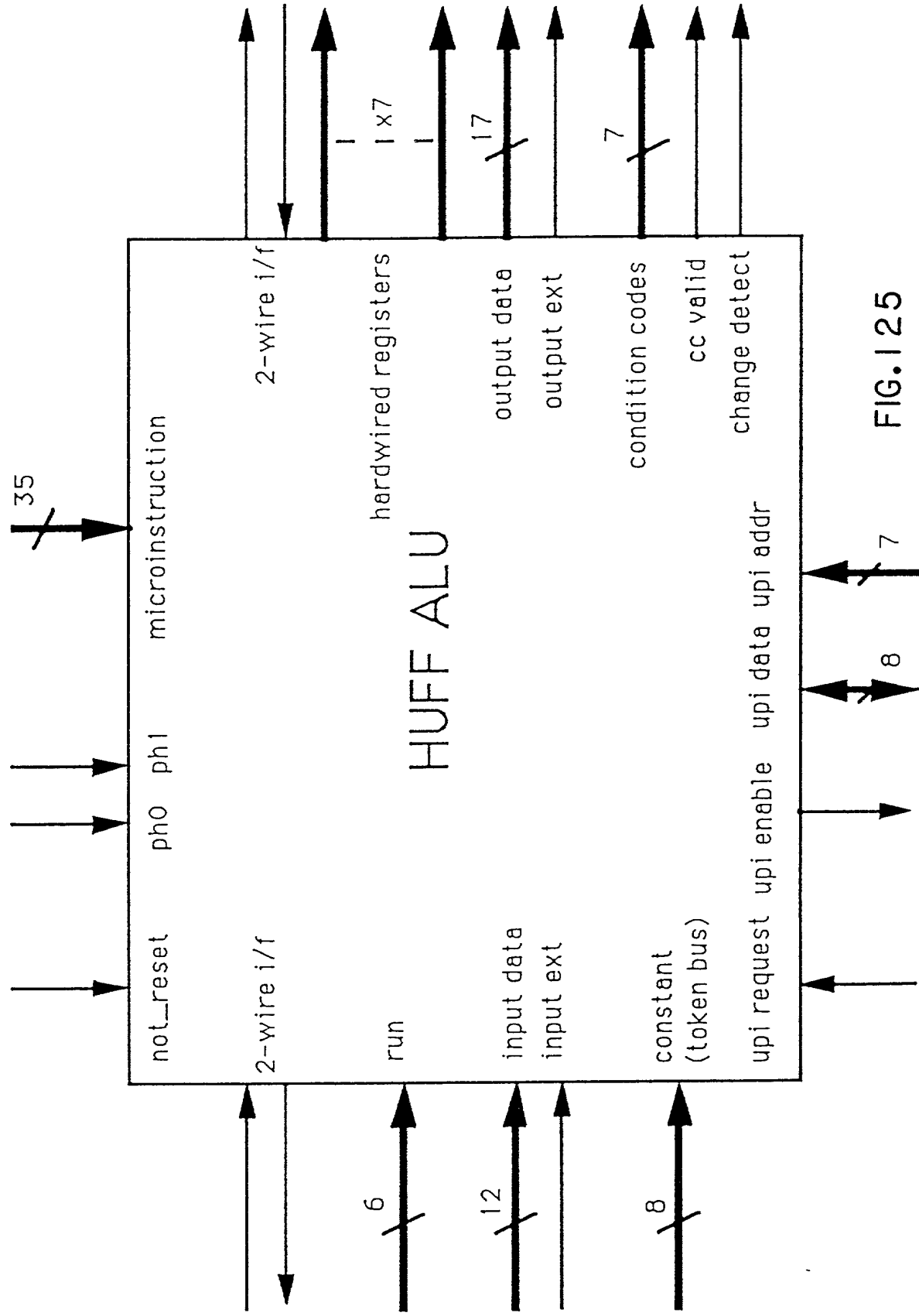


FIG. 125

406020 4400 450

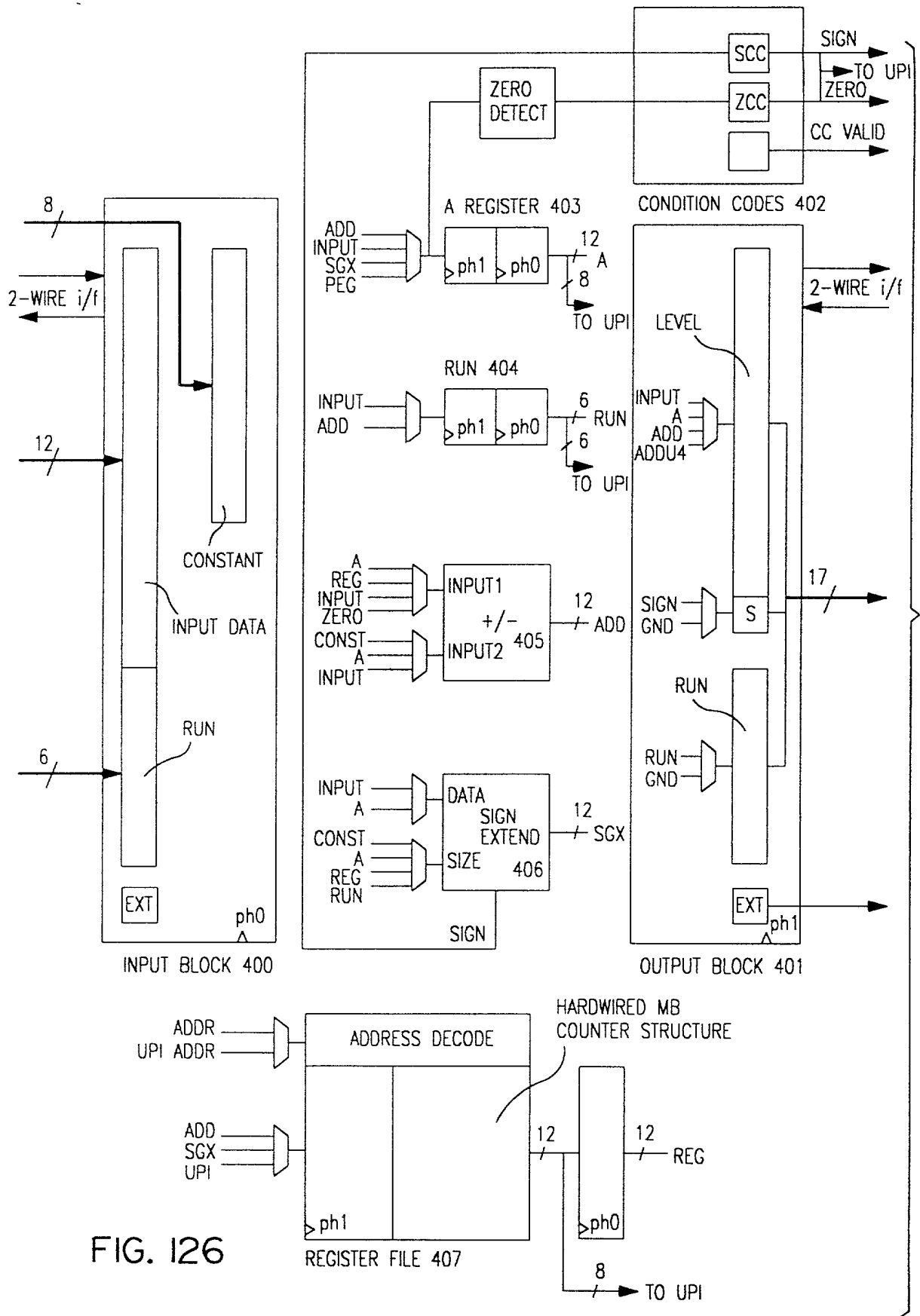


FIG. 126

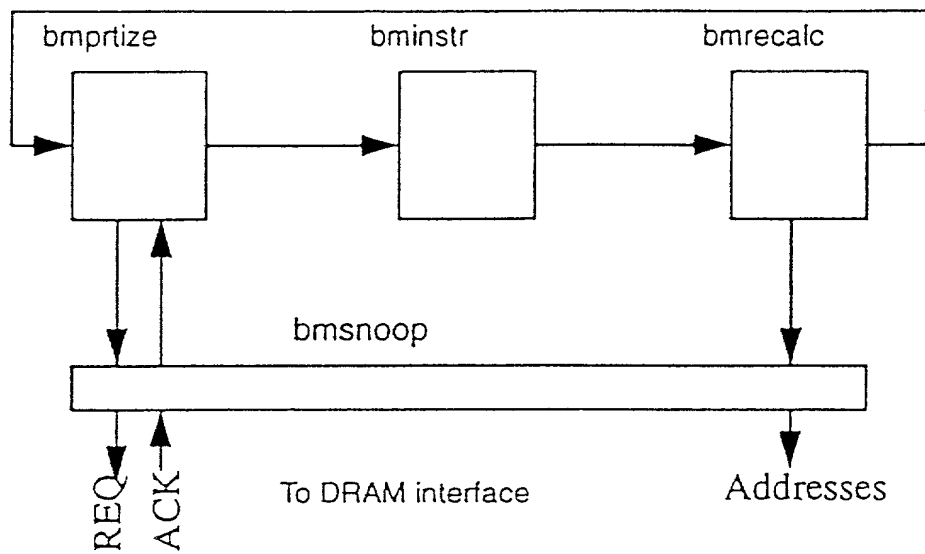


FIG. 127

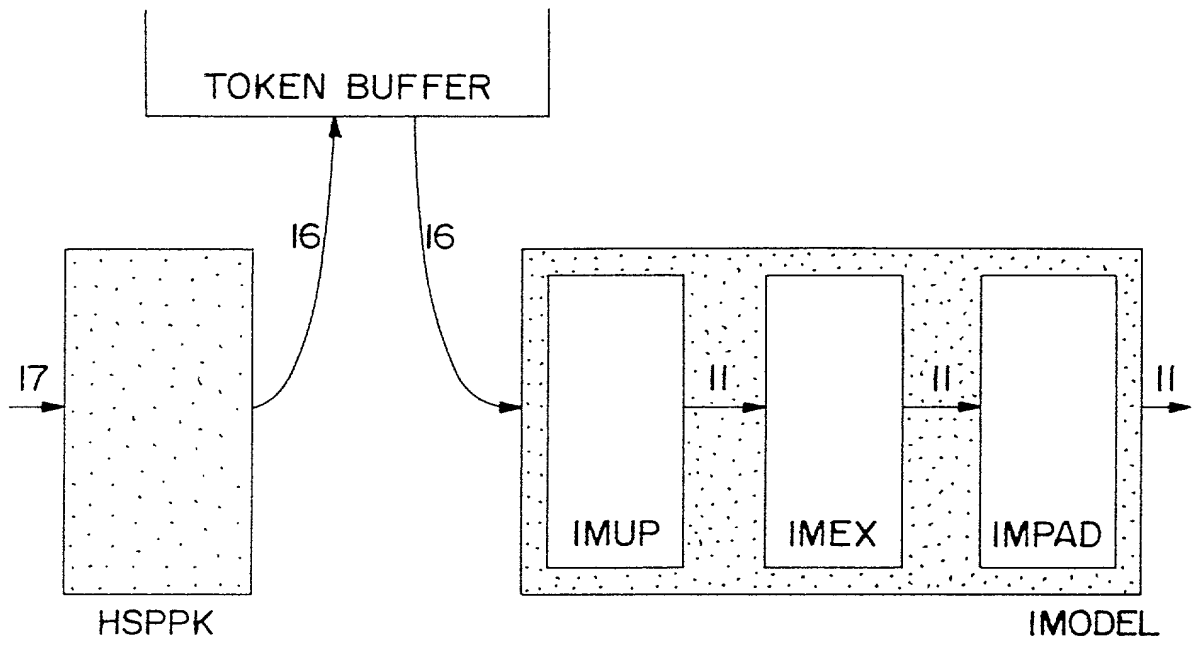


FIG. 128

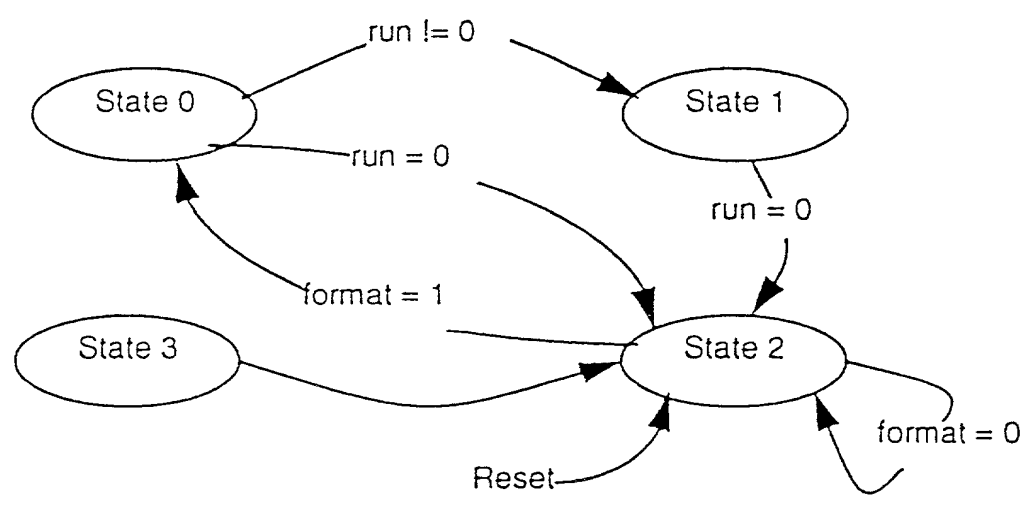


FIG. 129

097644 00004
106020 1492/50

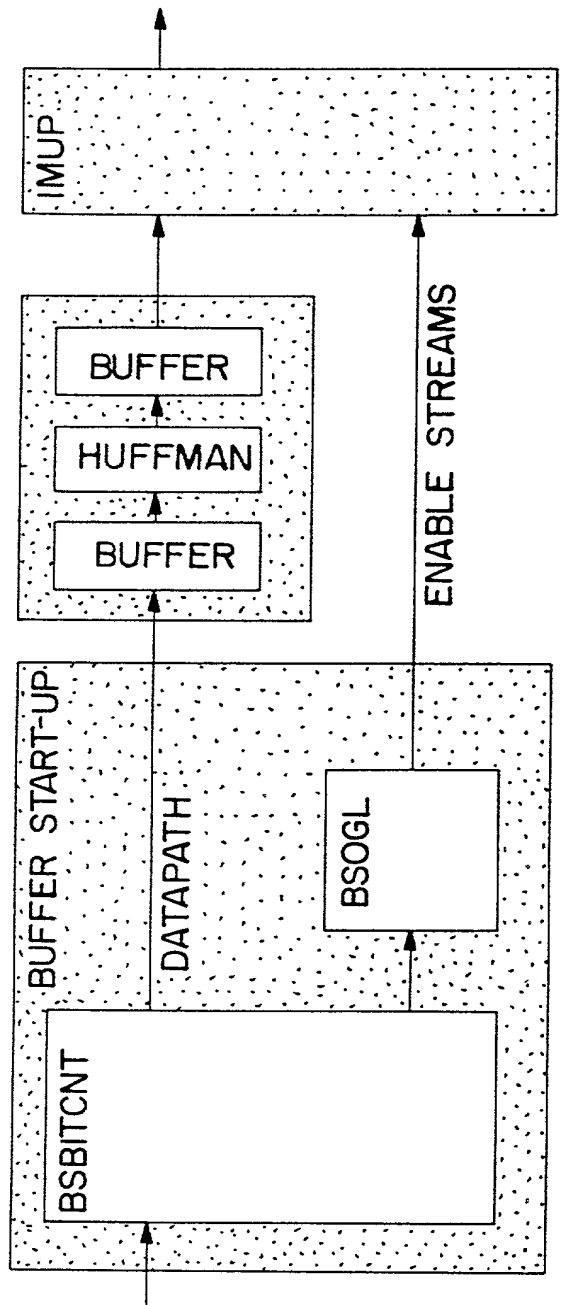


FIG. 130

FIG. 131

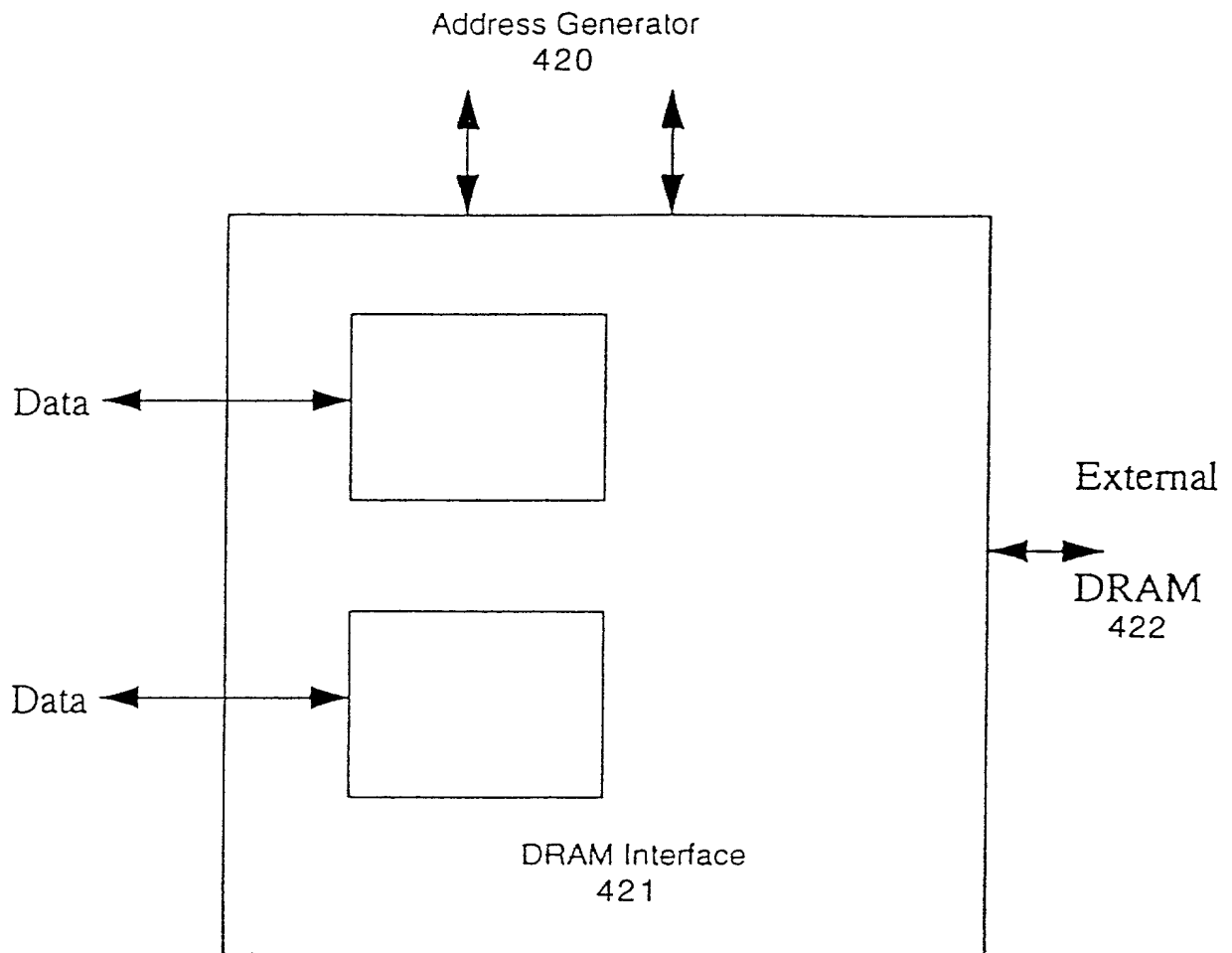


FIG. 131

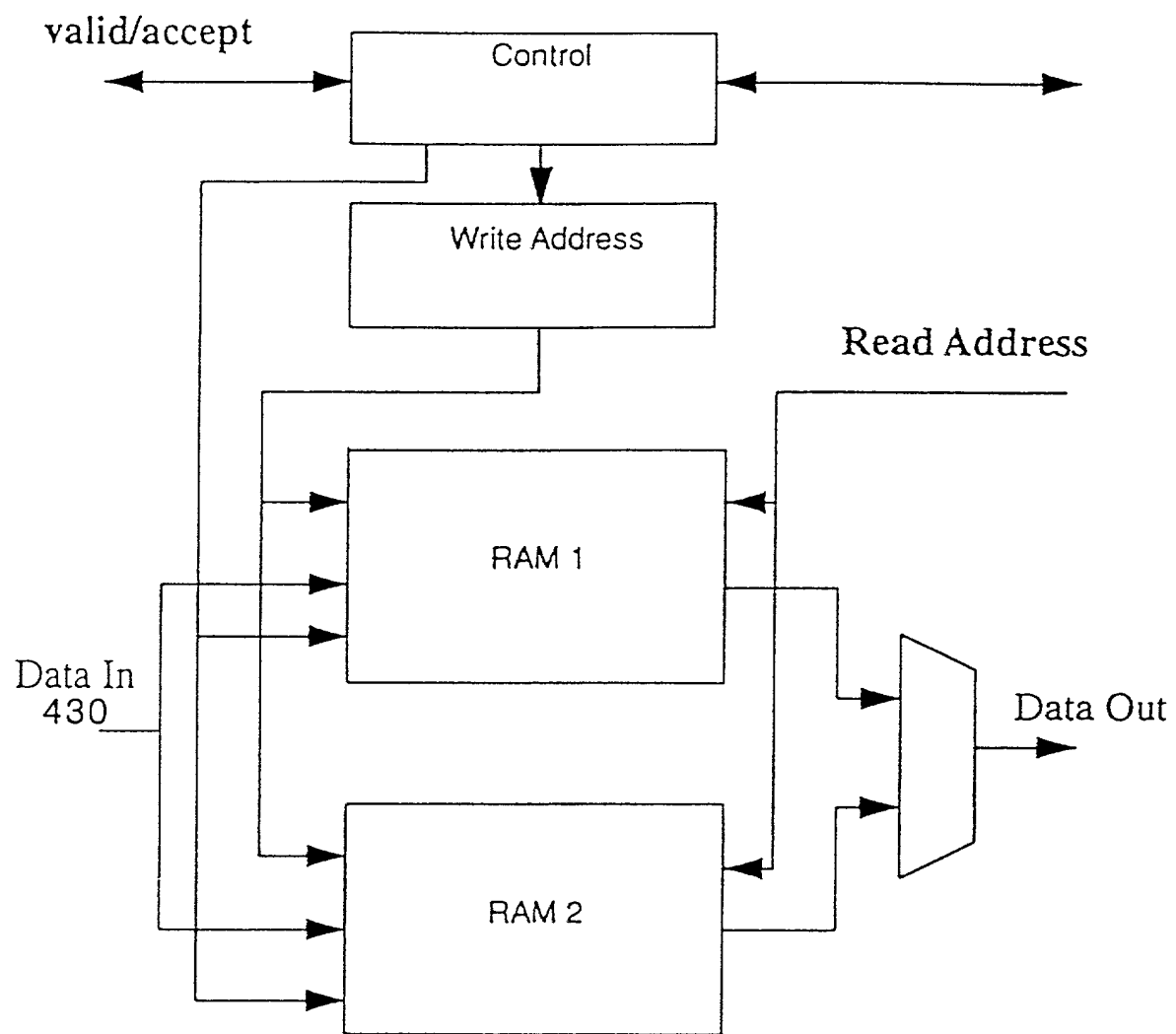


FIG. 132

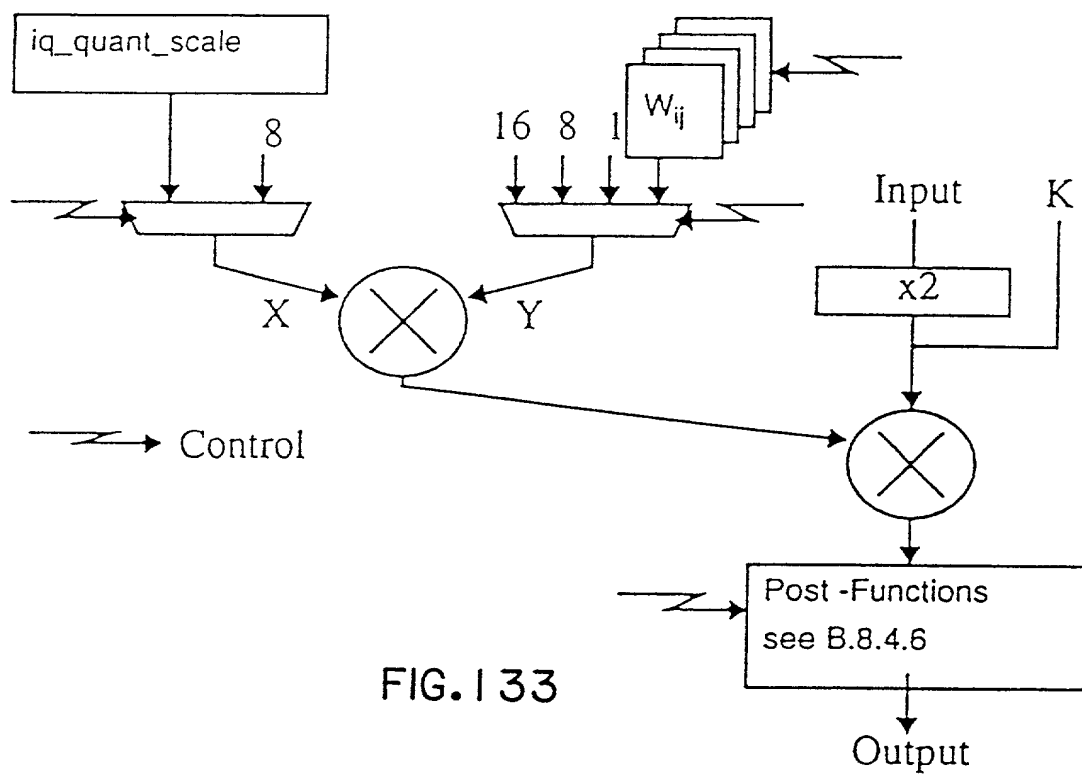


FIG. 133

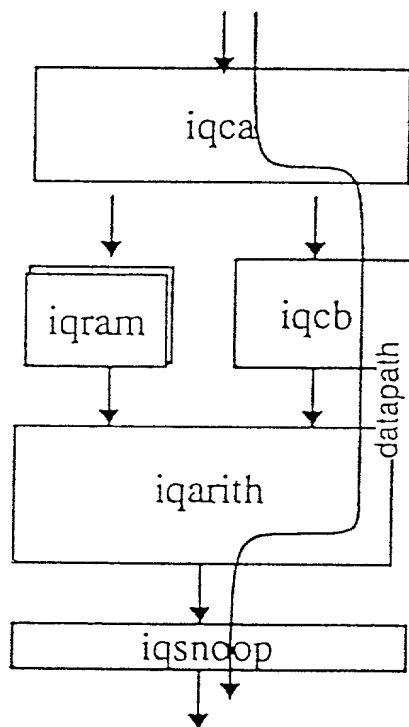


FIG. 134

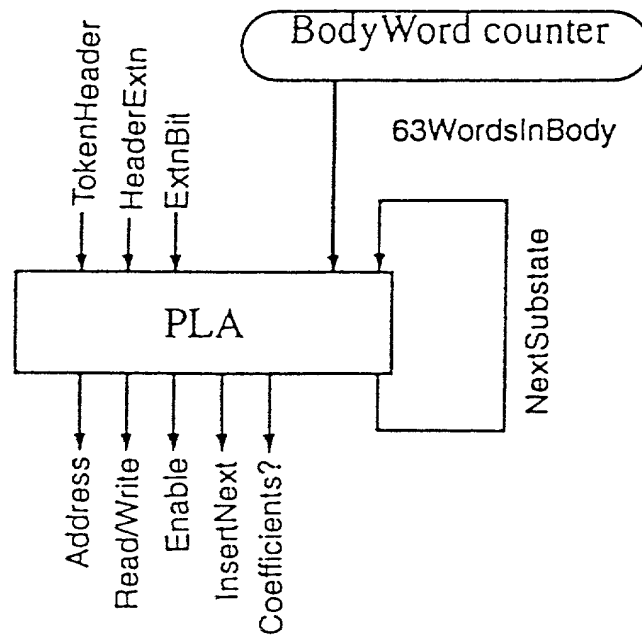


FIG. 135

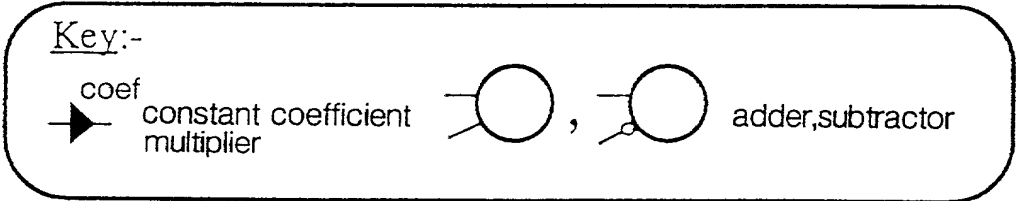
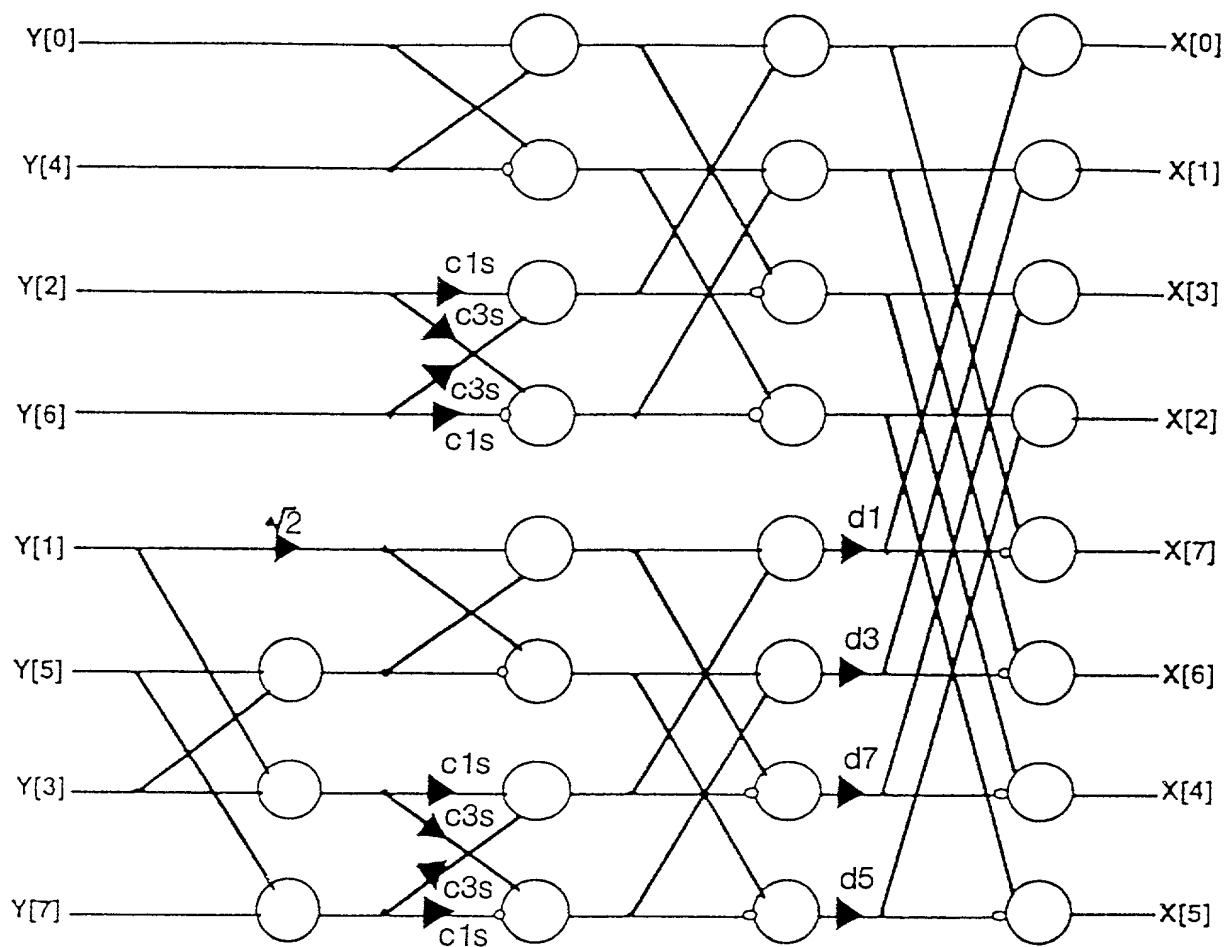


FIG. 136

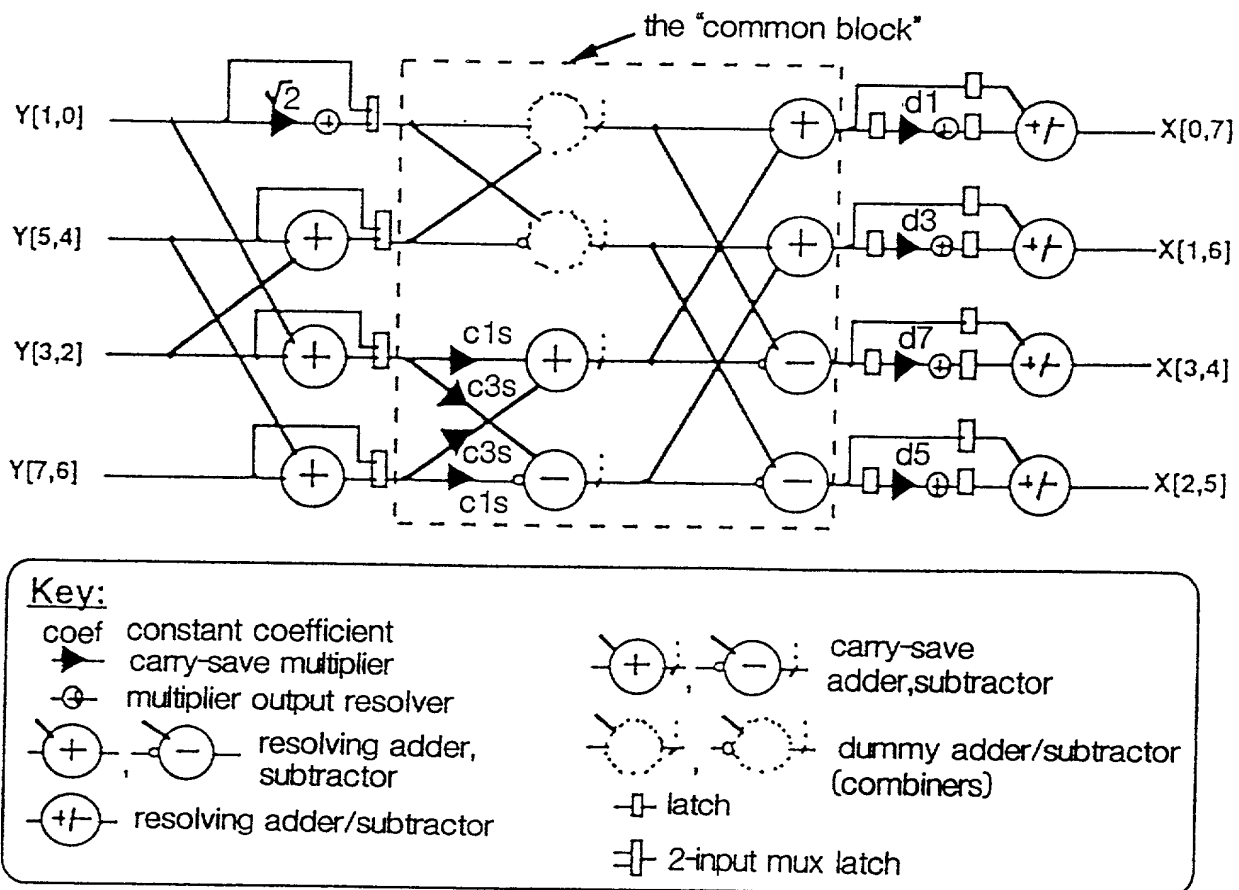


FIG. 137

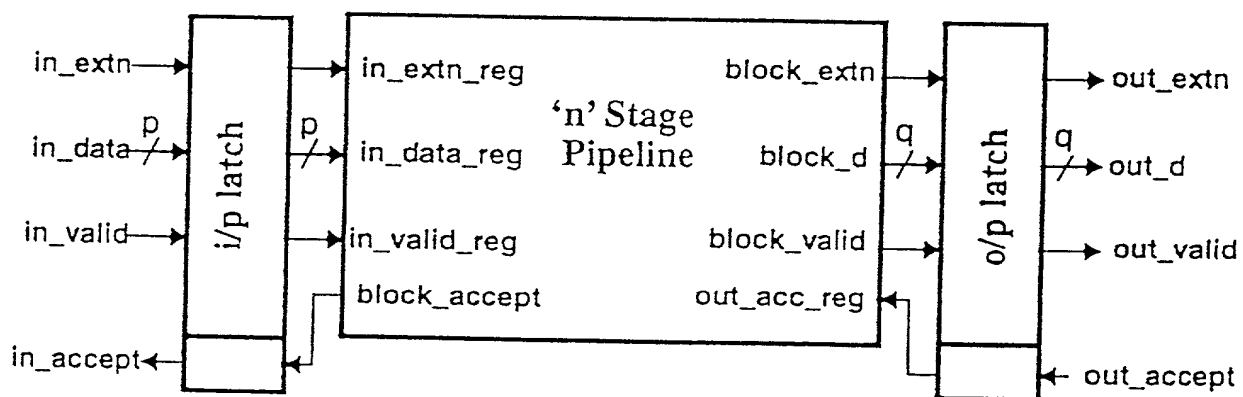


FIG. 138

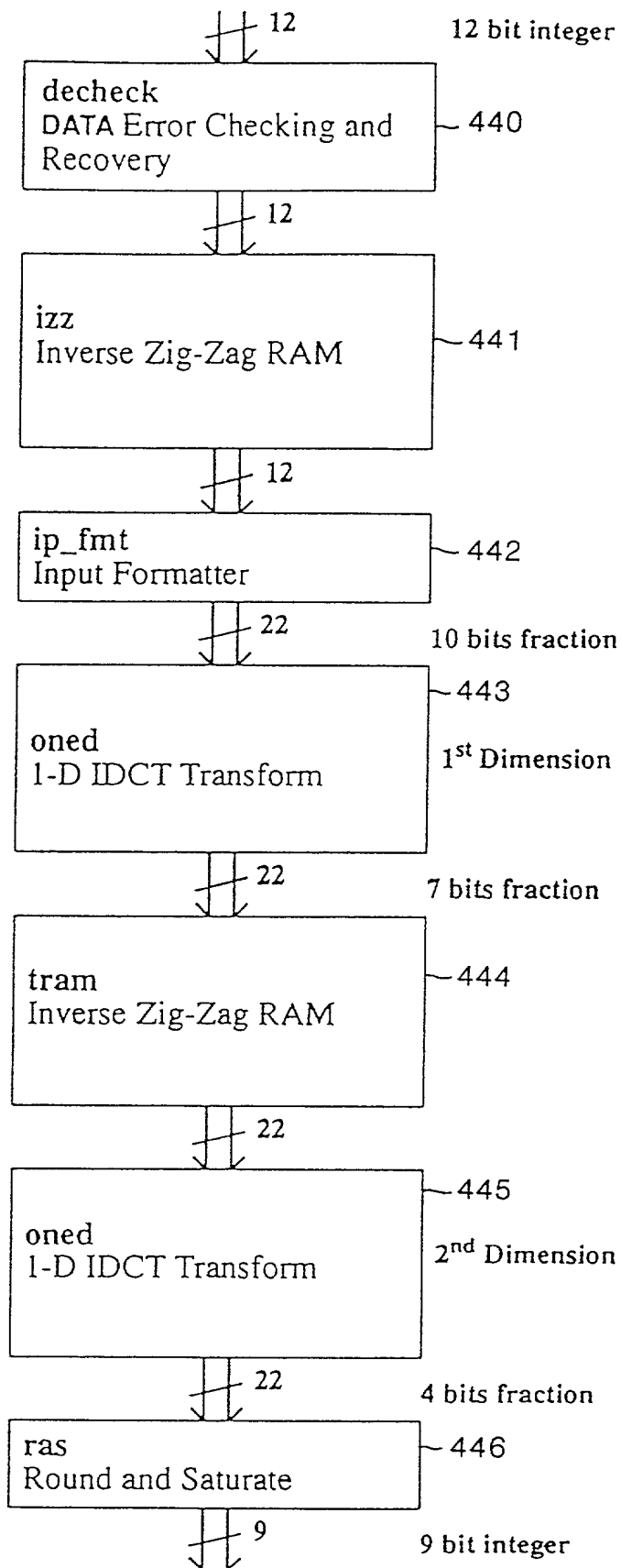


FIG. 139

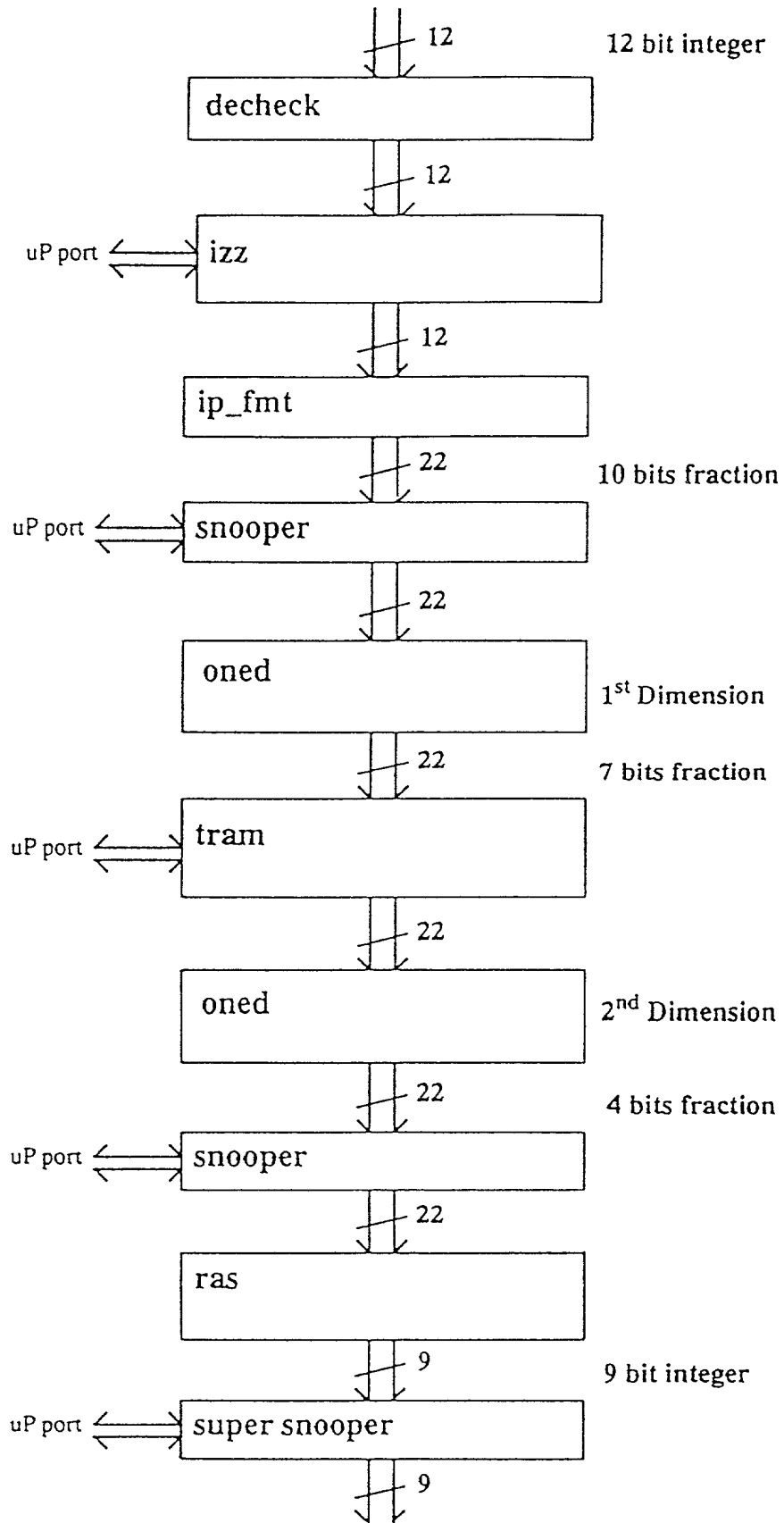
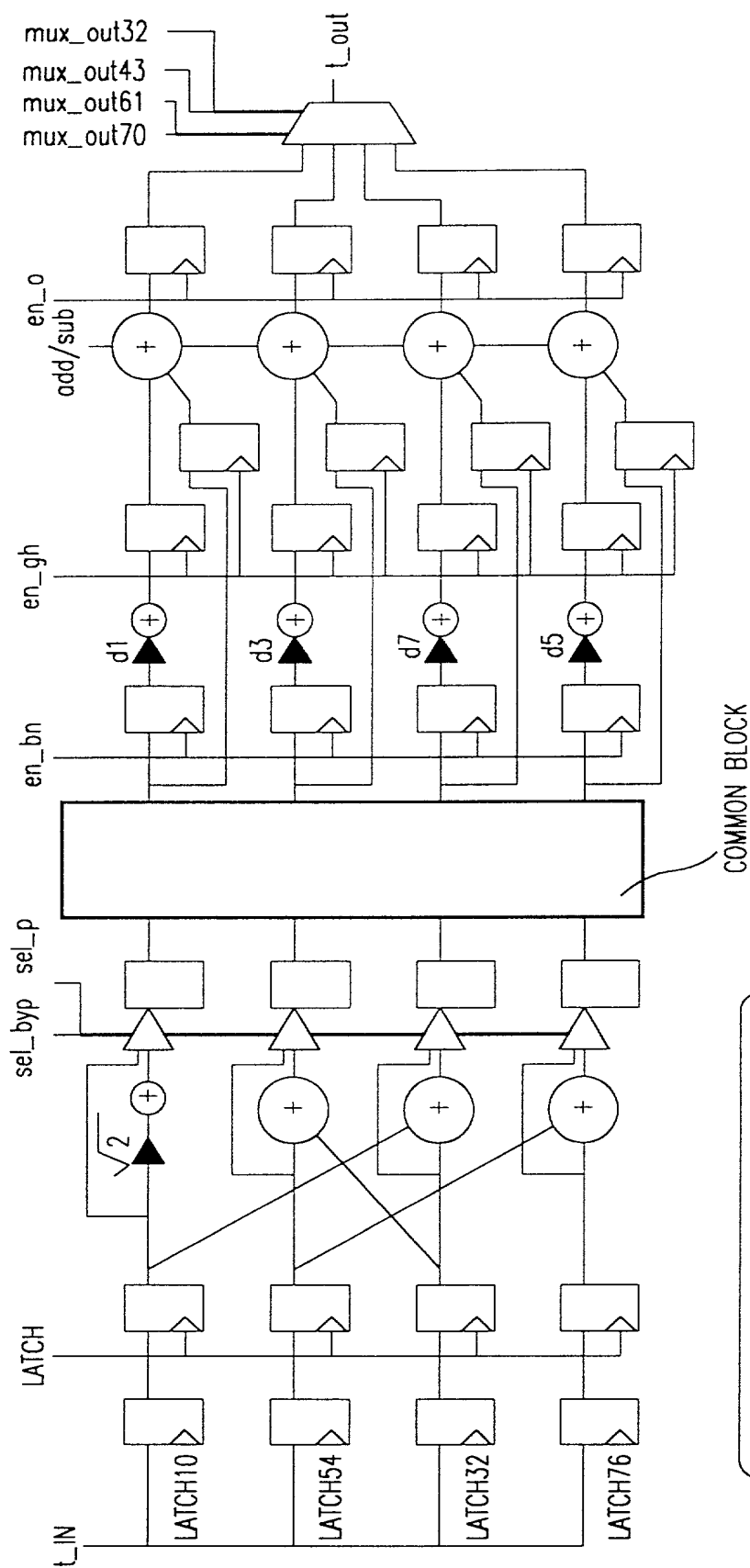


FIG. 1 40



NOTE: "COMMON BLOCK" IS ENTIRELY COMBINATIONAL (NO LATCHING)

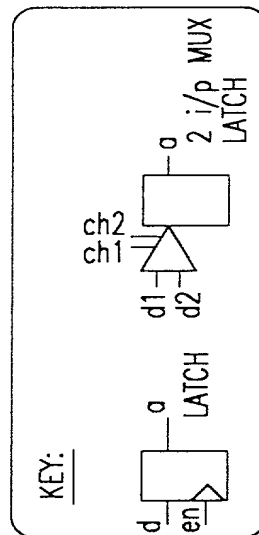


FIG. 14b

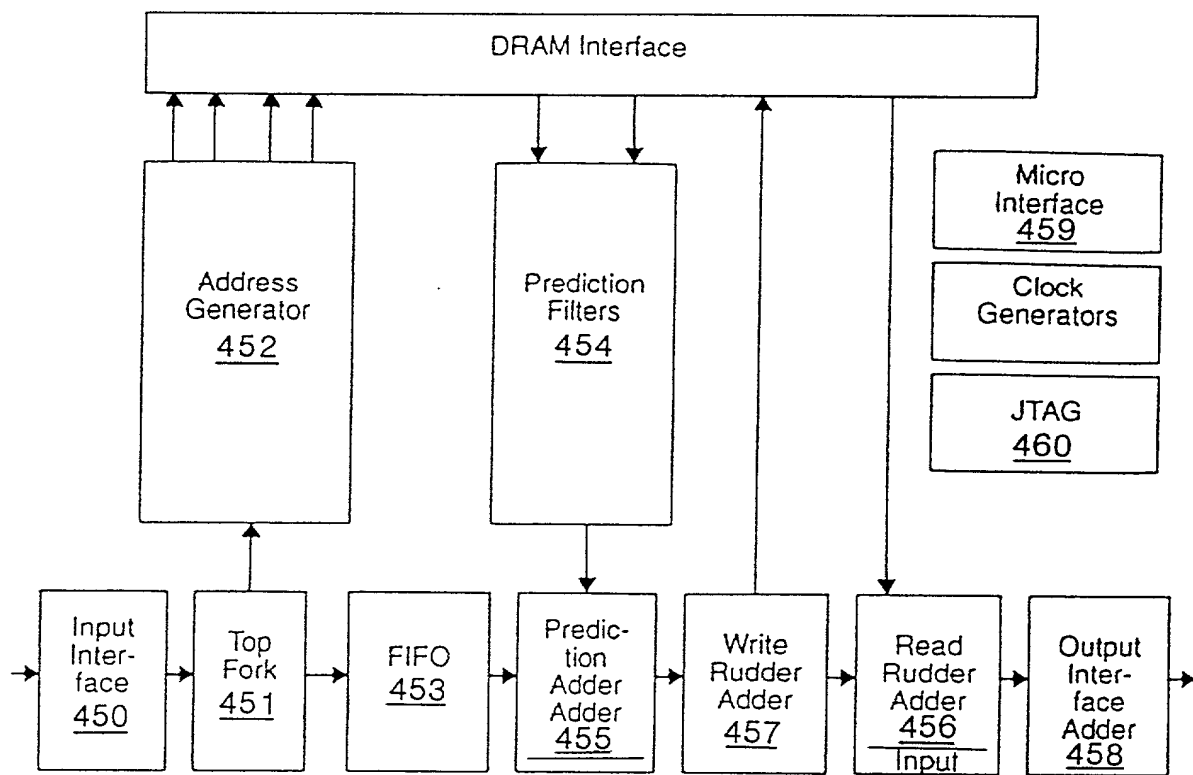


FIG. 142

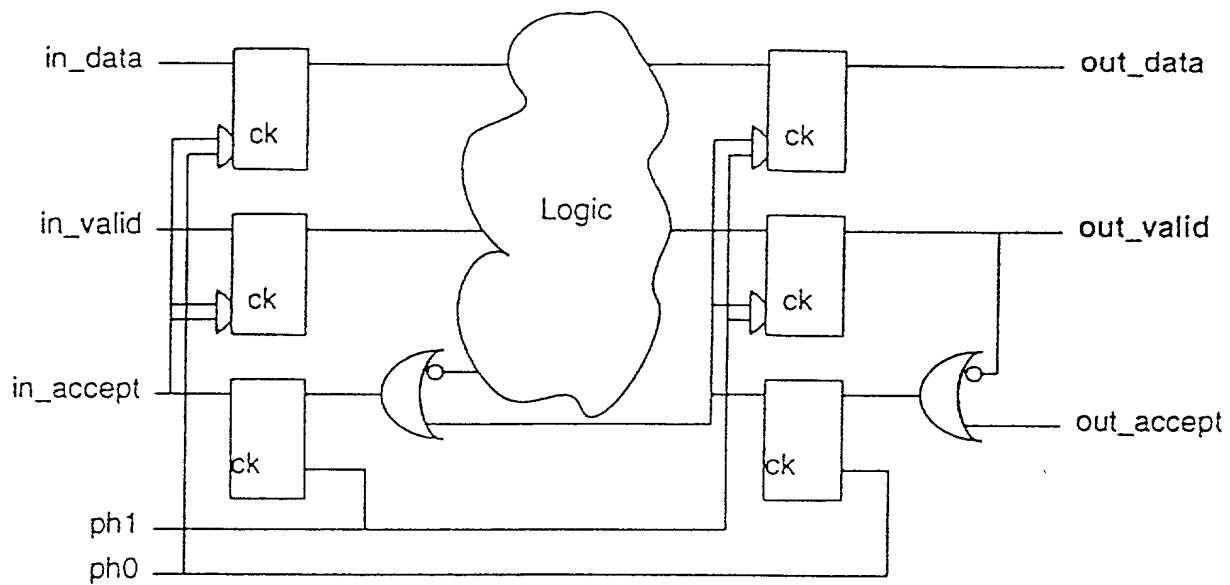


FIG. 143

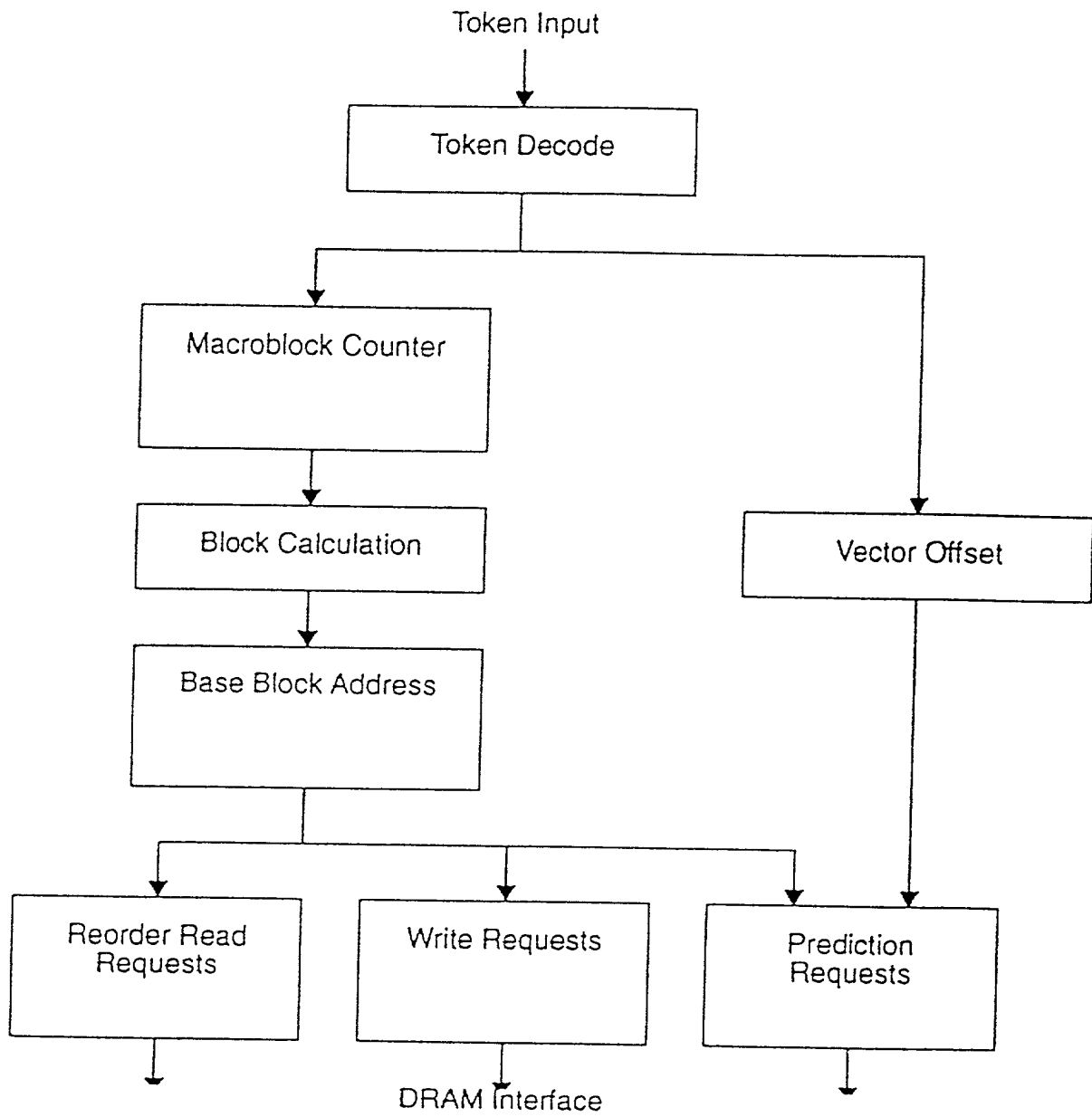


FIG. 144

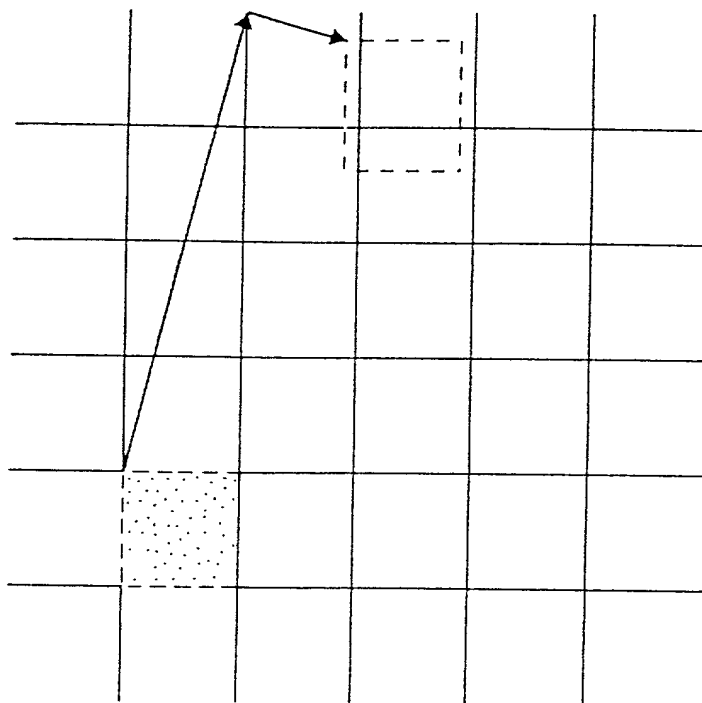


FIG. 145

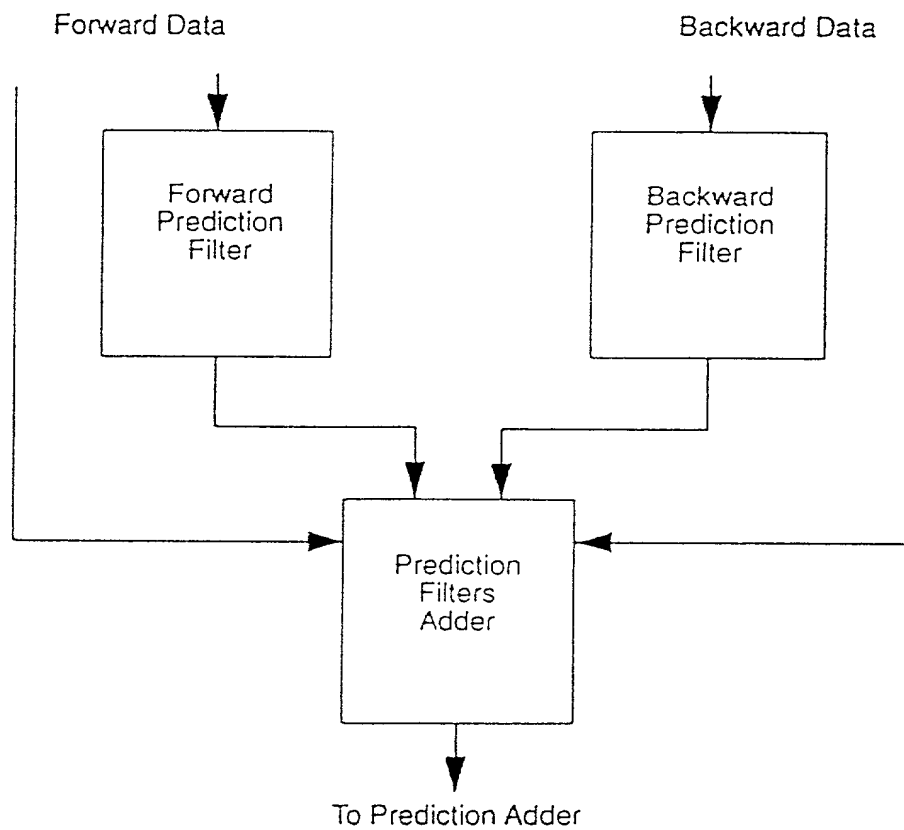


FIG. 146

```
graph TD; A[Input Data] --> B[Pred. Filters Formatter]; B --> C[1-D Prediction Filter (x)]; C --> D[Dimension Buffer]; D --> E[1-D Prediction Filter (y)]; E --> F[Output Data]
```

Input Data

Pred. Filters
Formatter

1-D Prediction
Filter (x)

Dimension
Buffer

1-D Prediction
Filter (y)

Output Data

FIG. 147

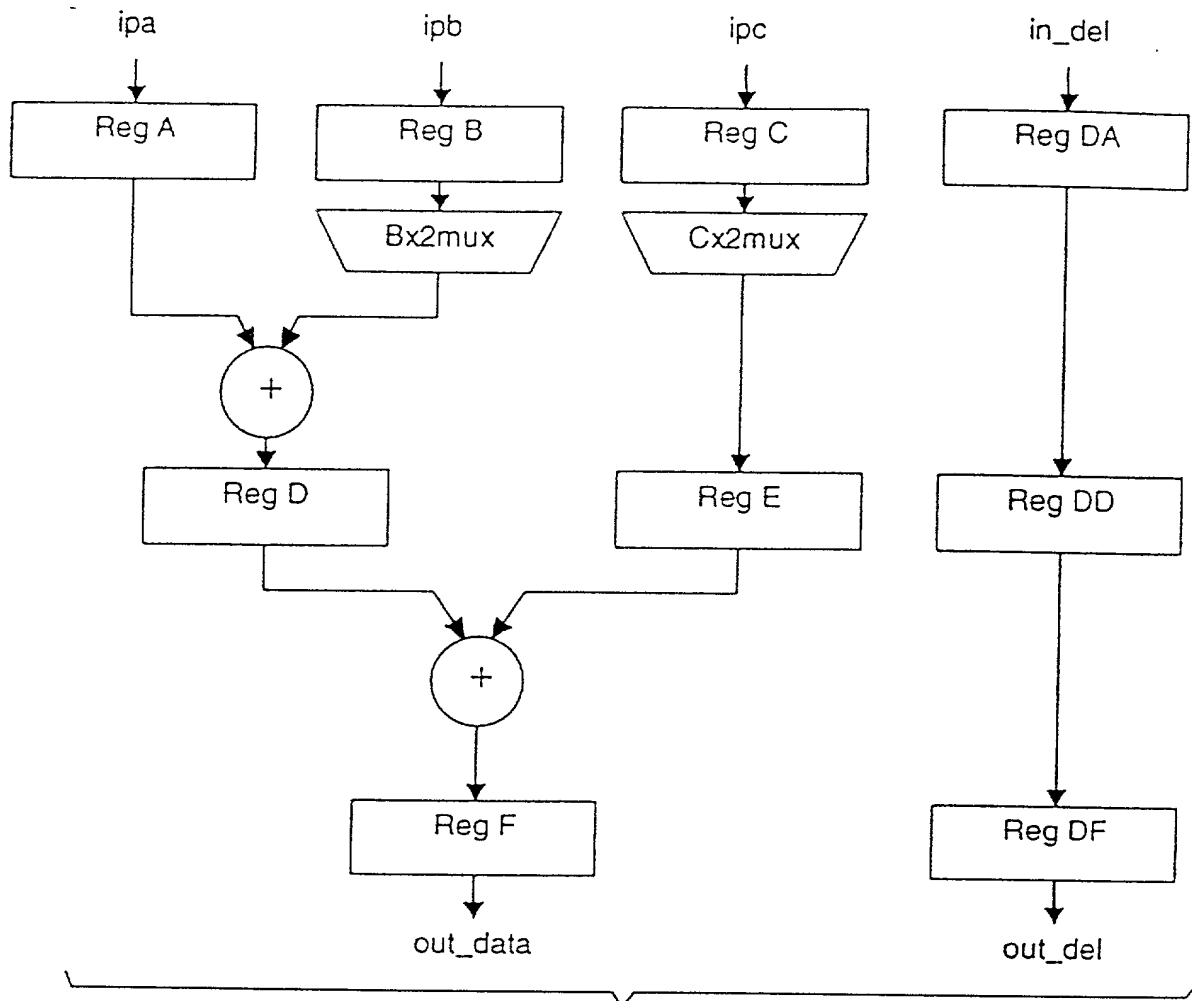


FIG. 148

0	1	2	3	4	5	6	7
8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23
24	25	26	27	28	29	30	31
32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47
48	49	50	51	52	53	54	55
56	57	58	59	60	61	62	63

FIG. 149

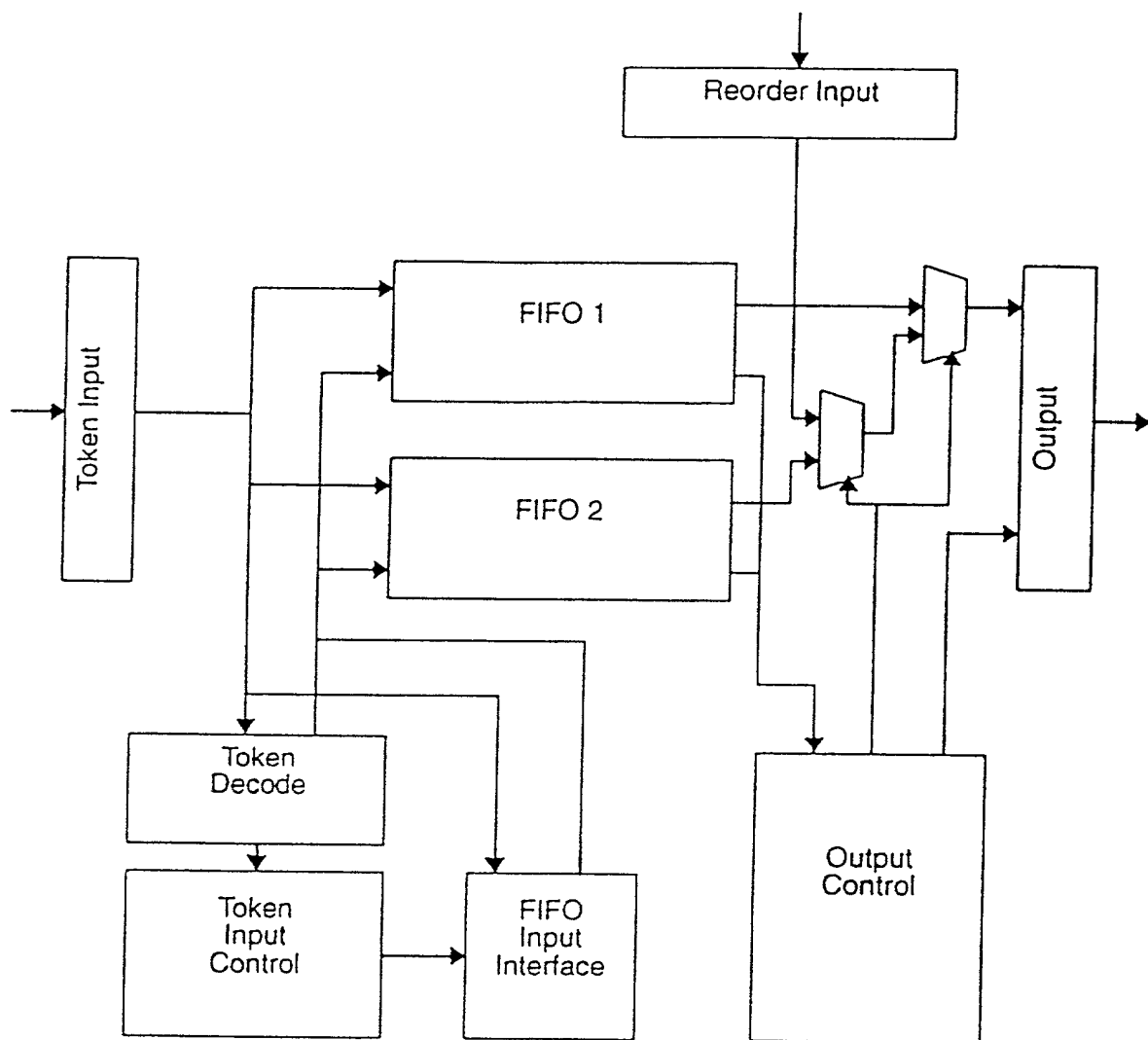


FIG. 150

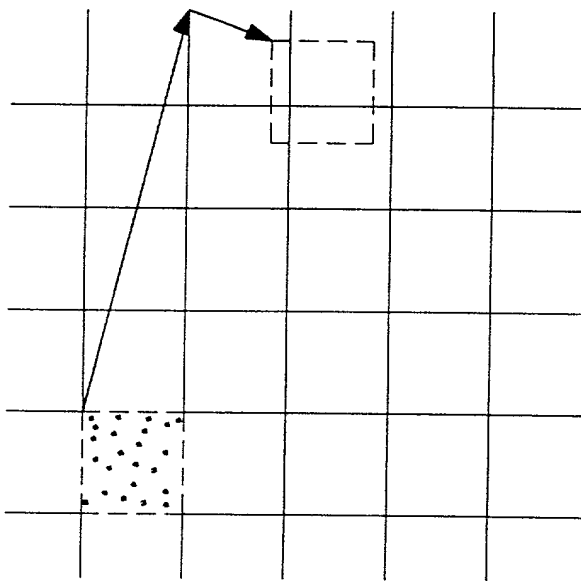


FIG. 151

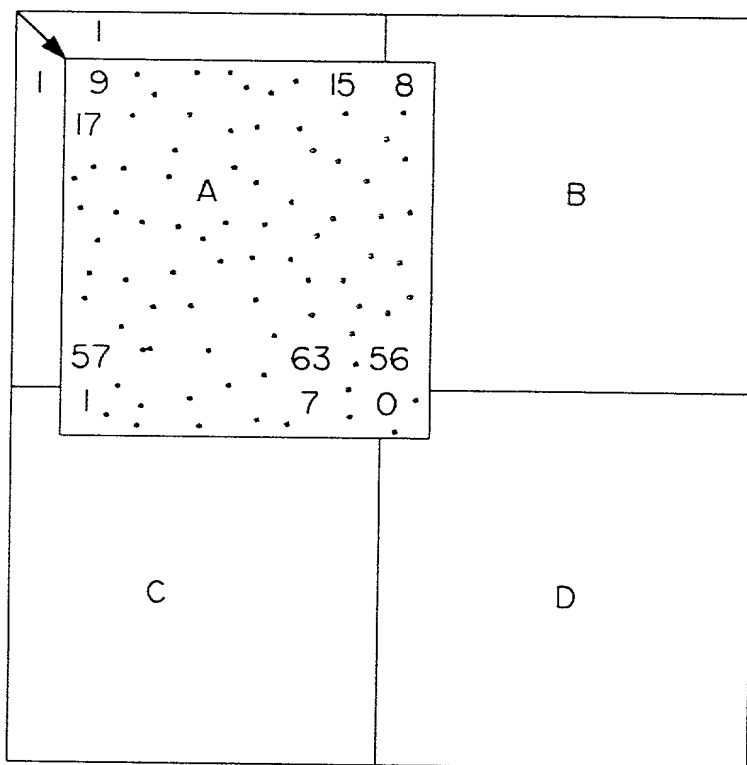


FIG. 152

Read Cycle

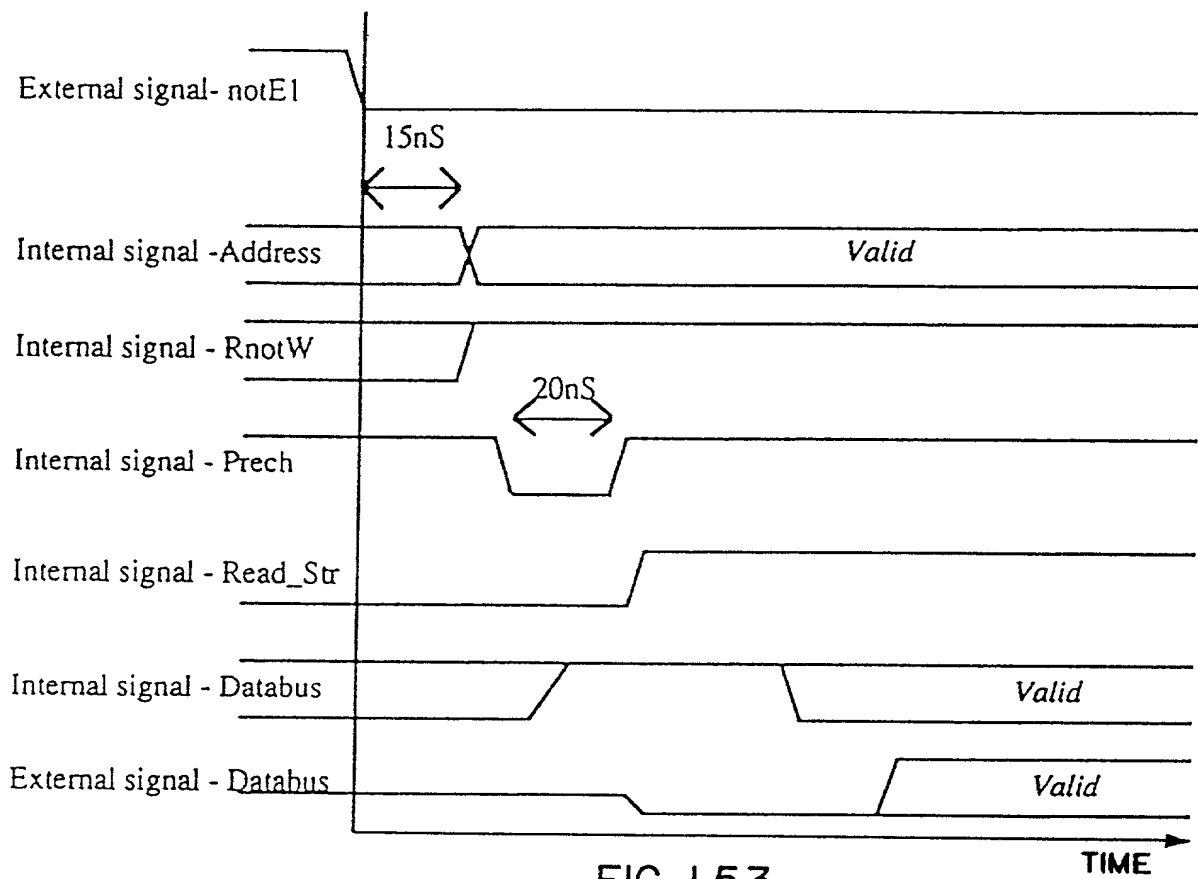


FIG. 153

Write Cycle

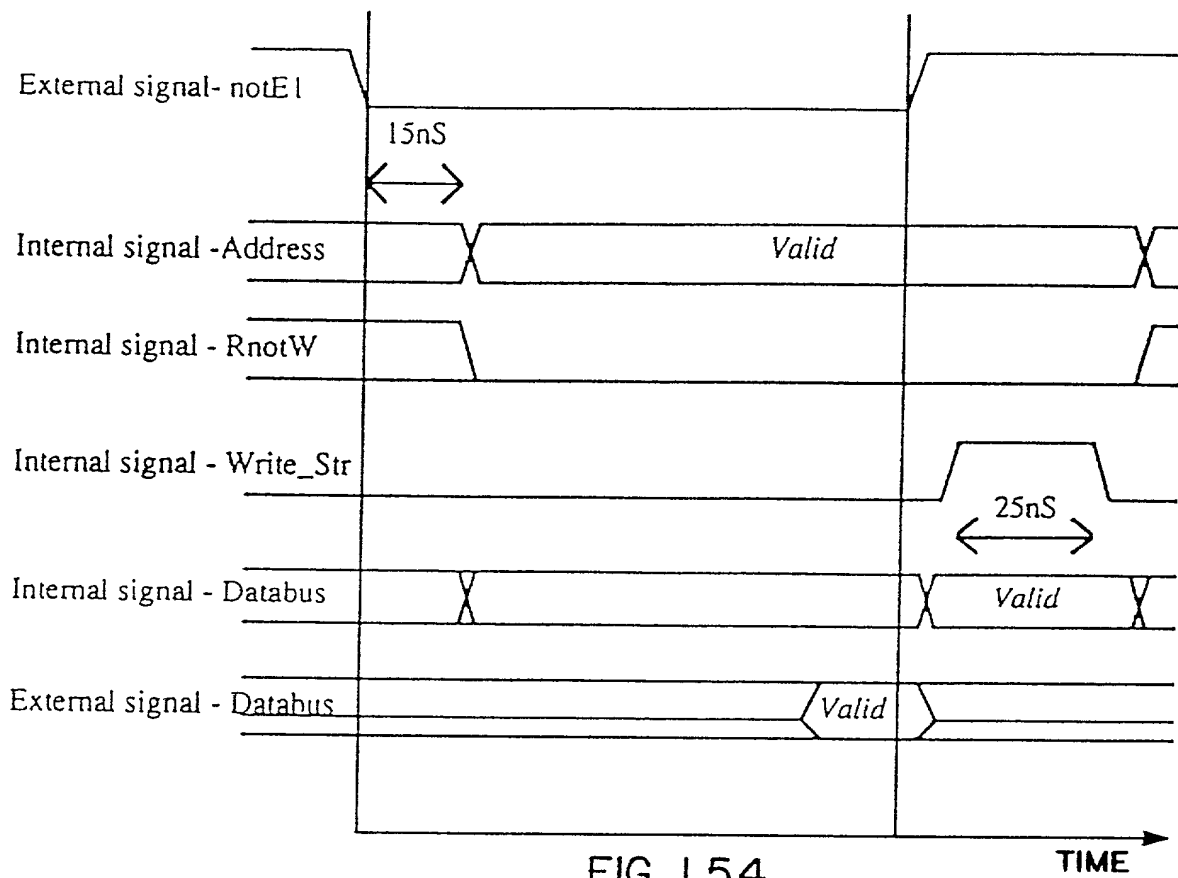


FIG. I 54

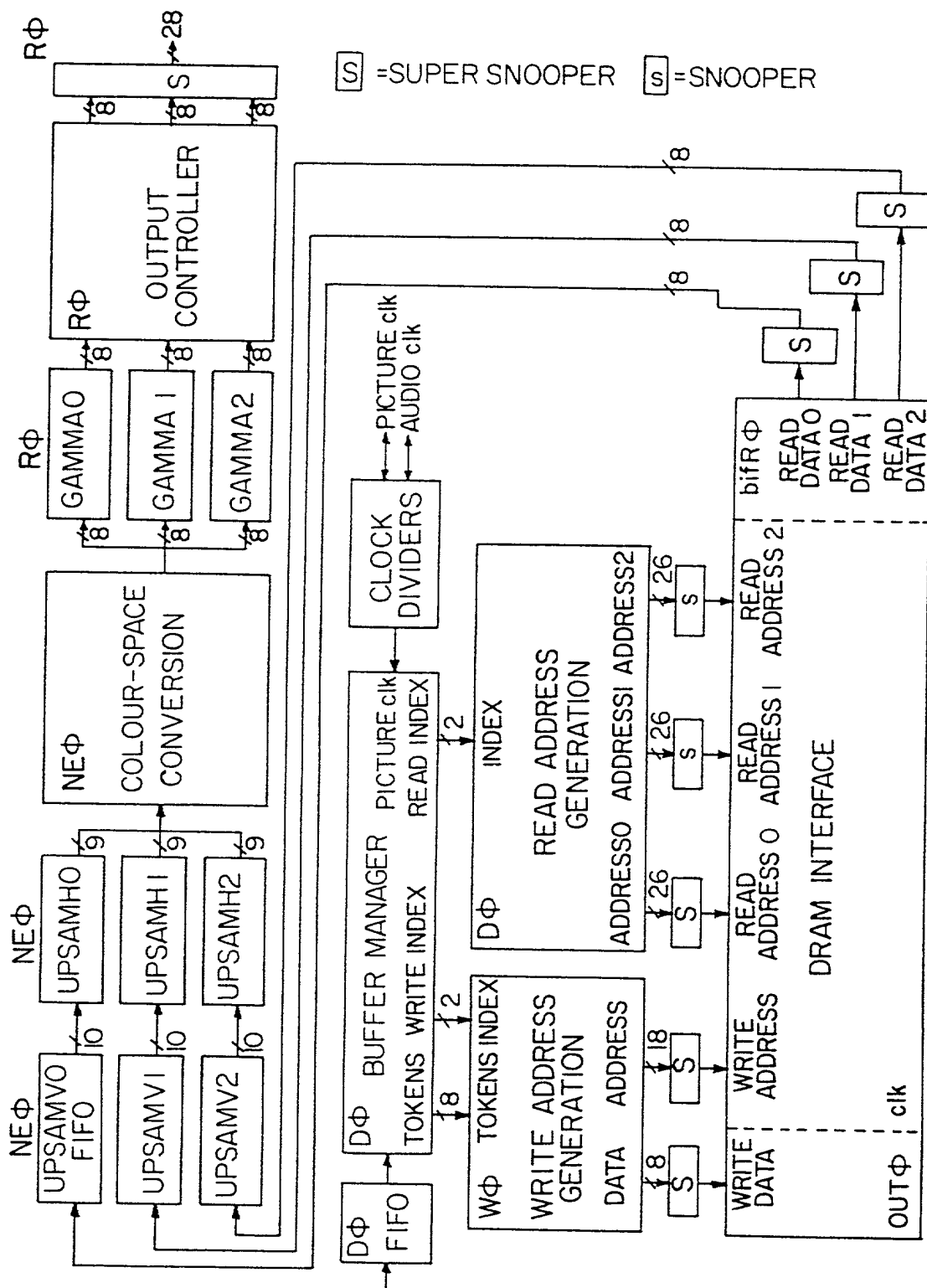


FIG. 155

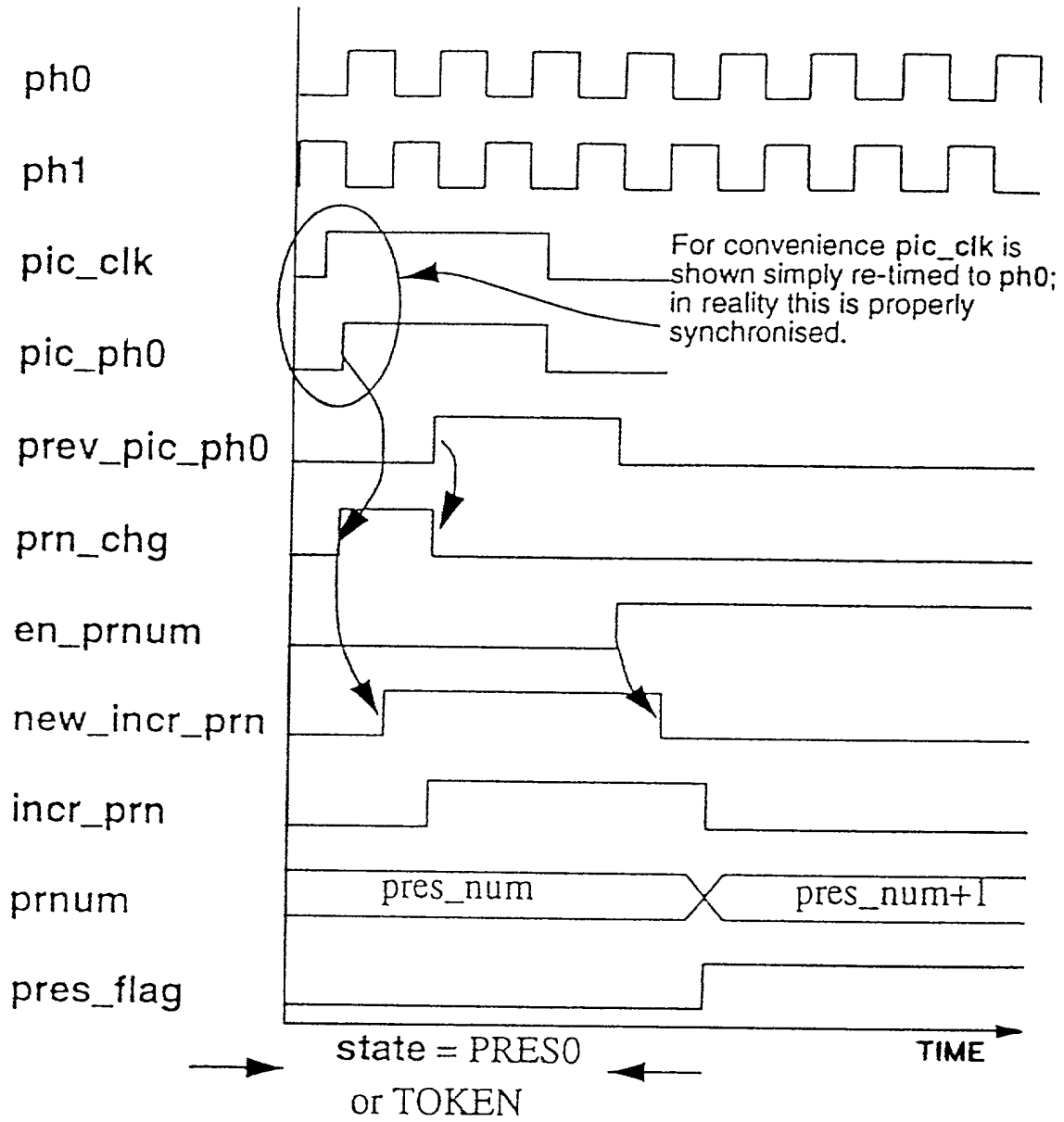


FIG. 156

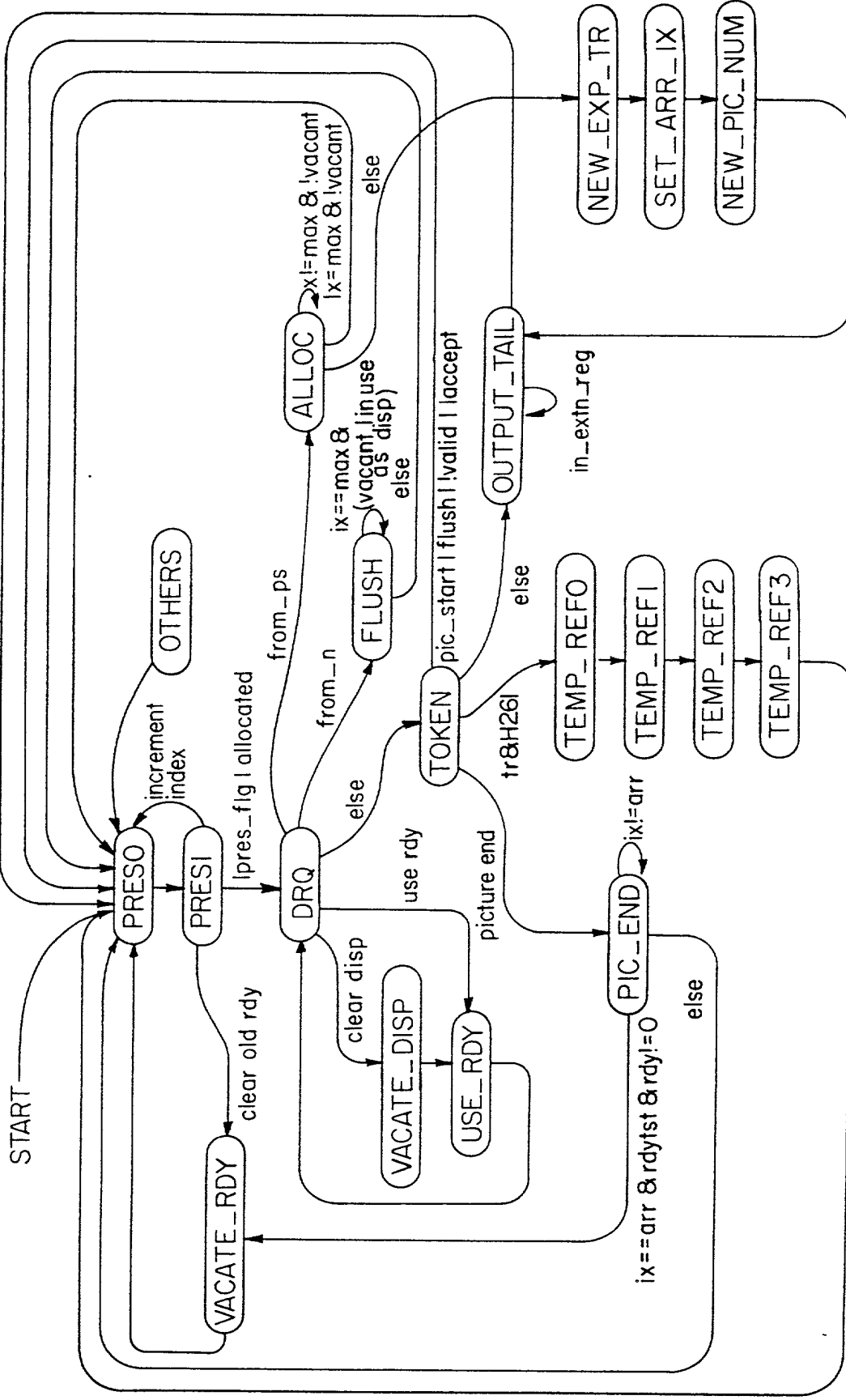


FIG.157

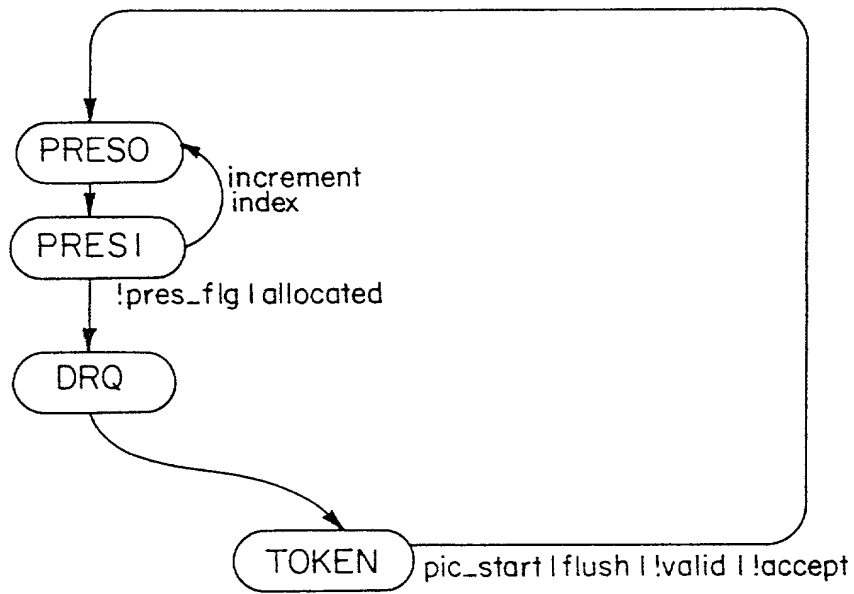
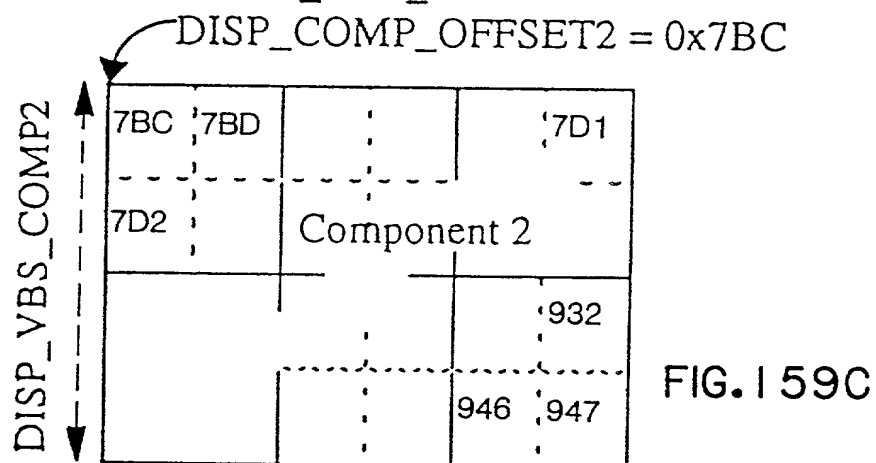
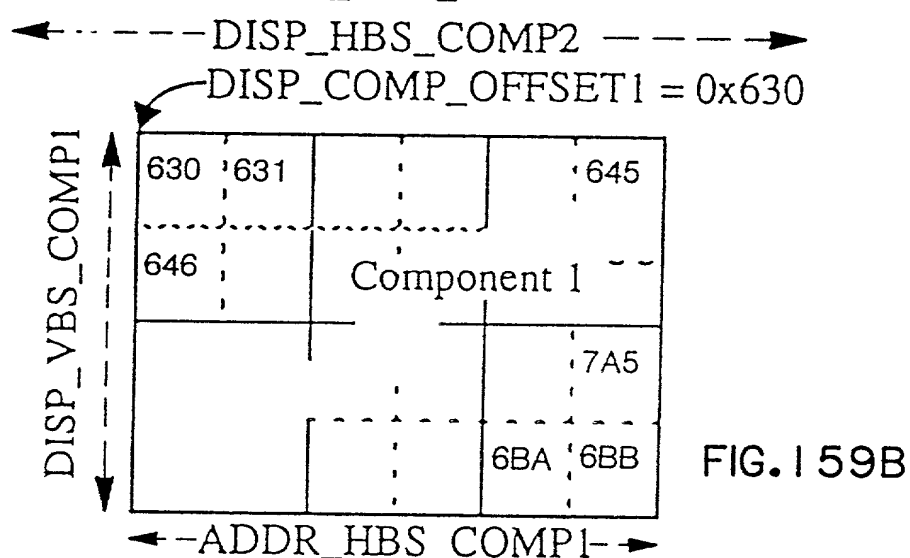
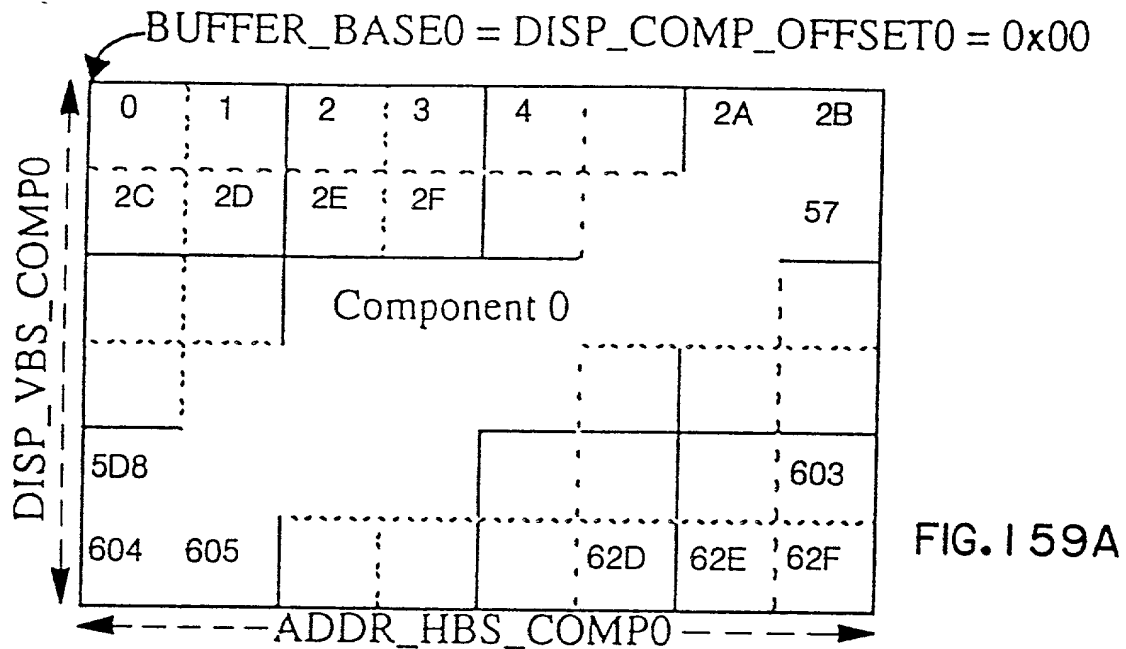


FIG. 158



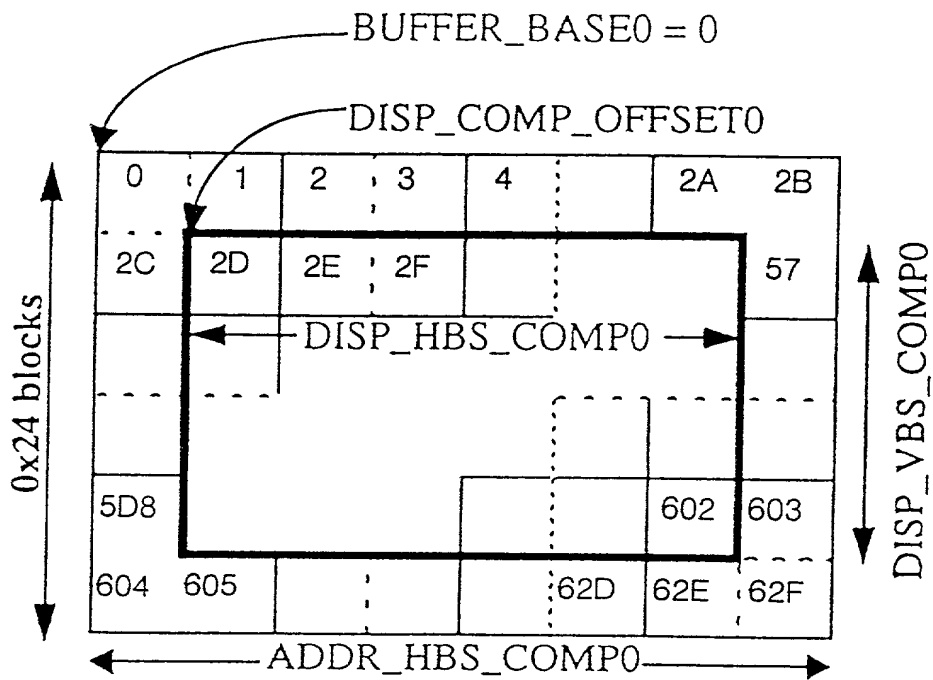


FIG. 160

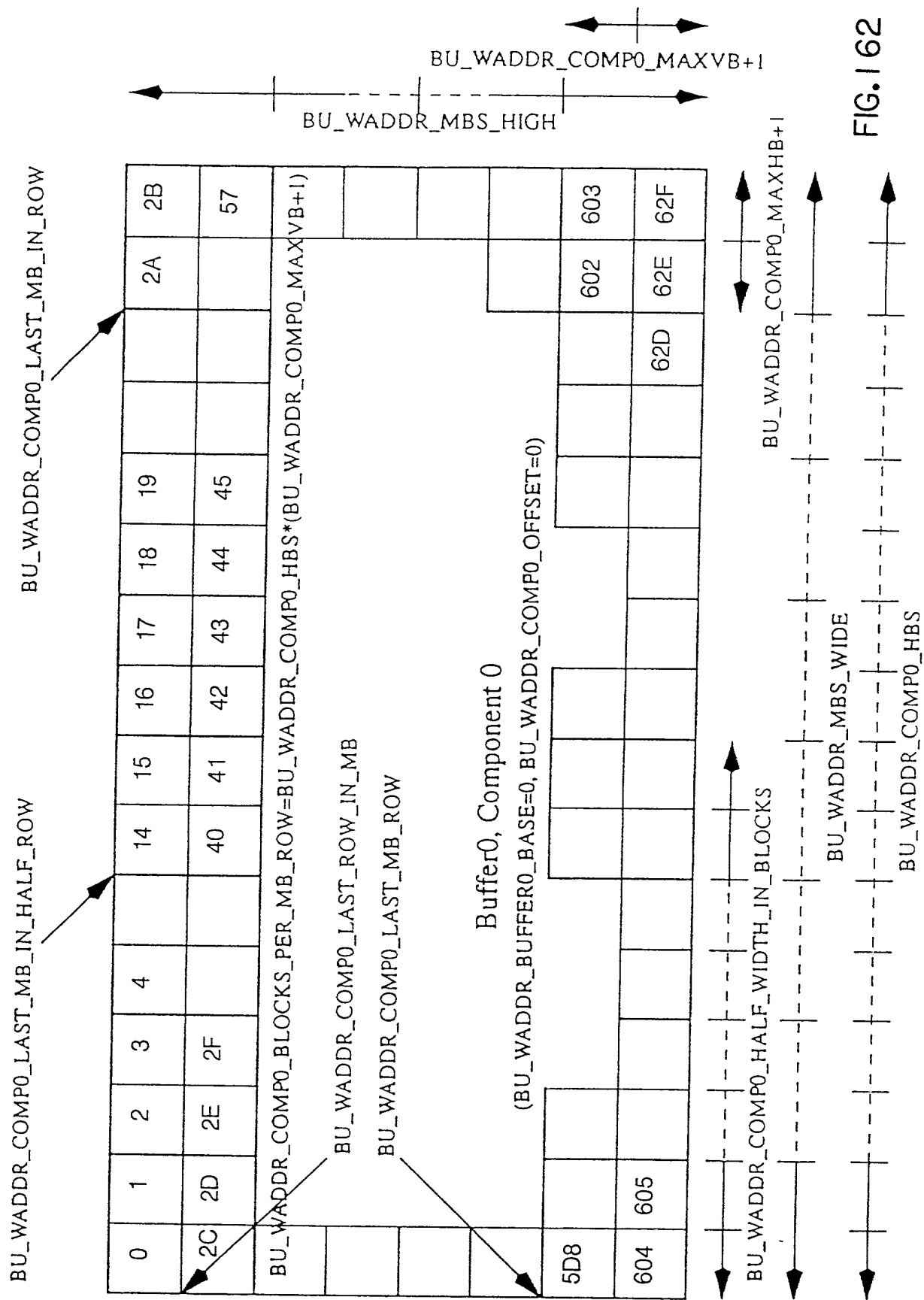


FIG. 162

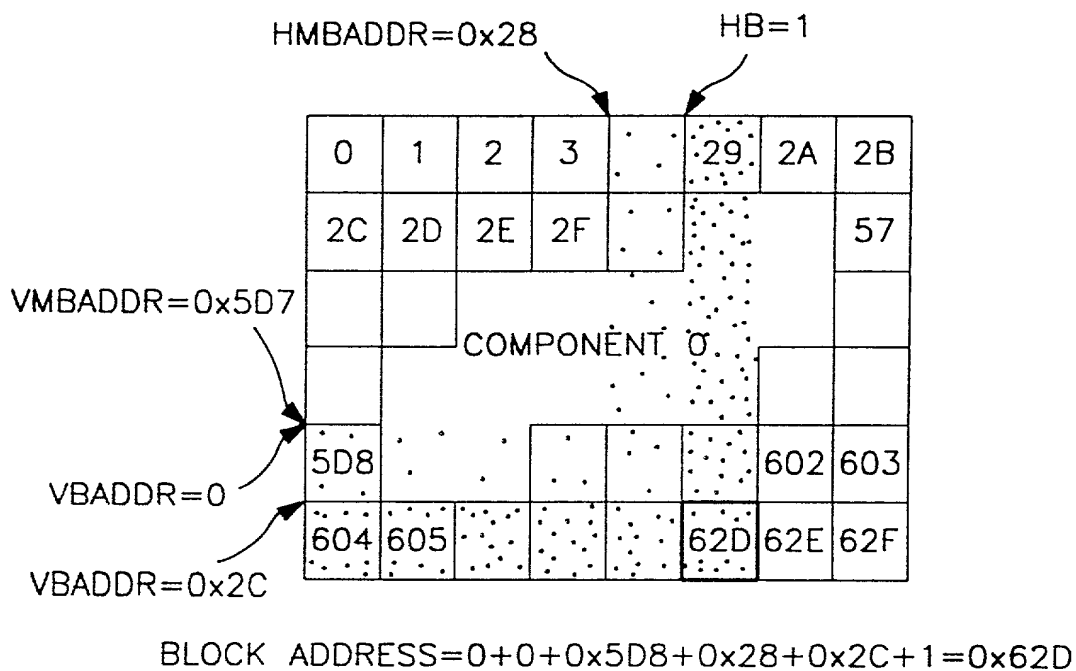


FIG. 1 63A

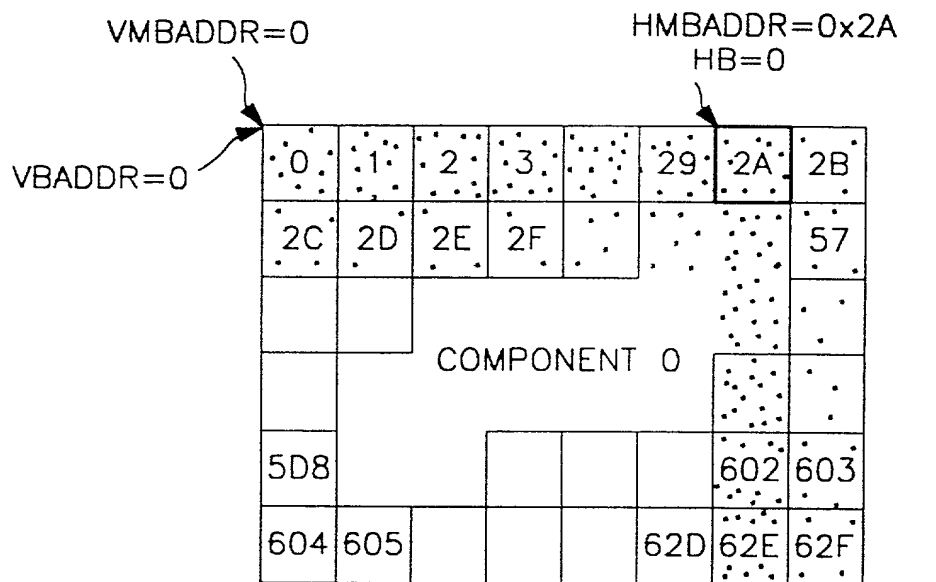


FIG. 1 63B

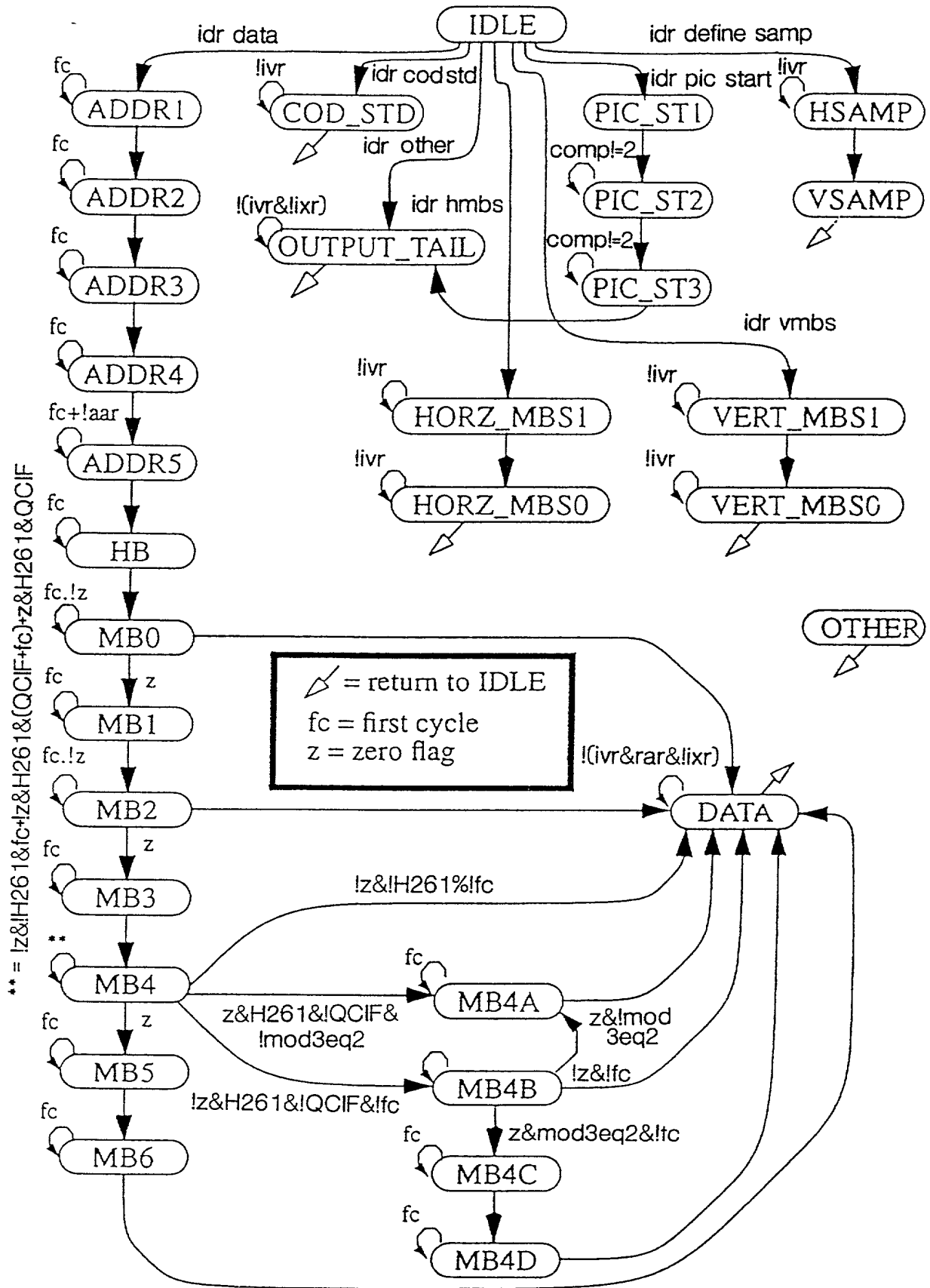


FIG. 164

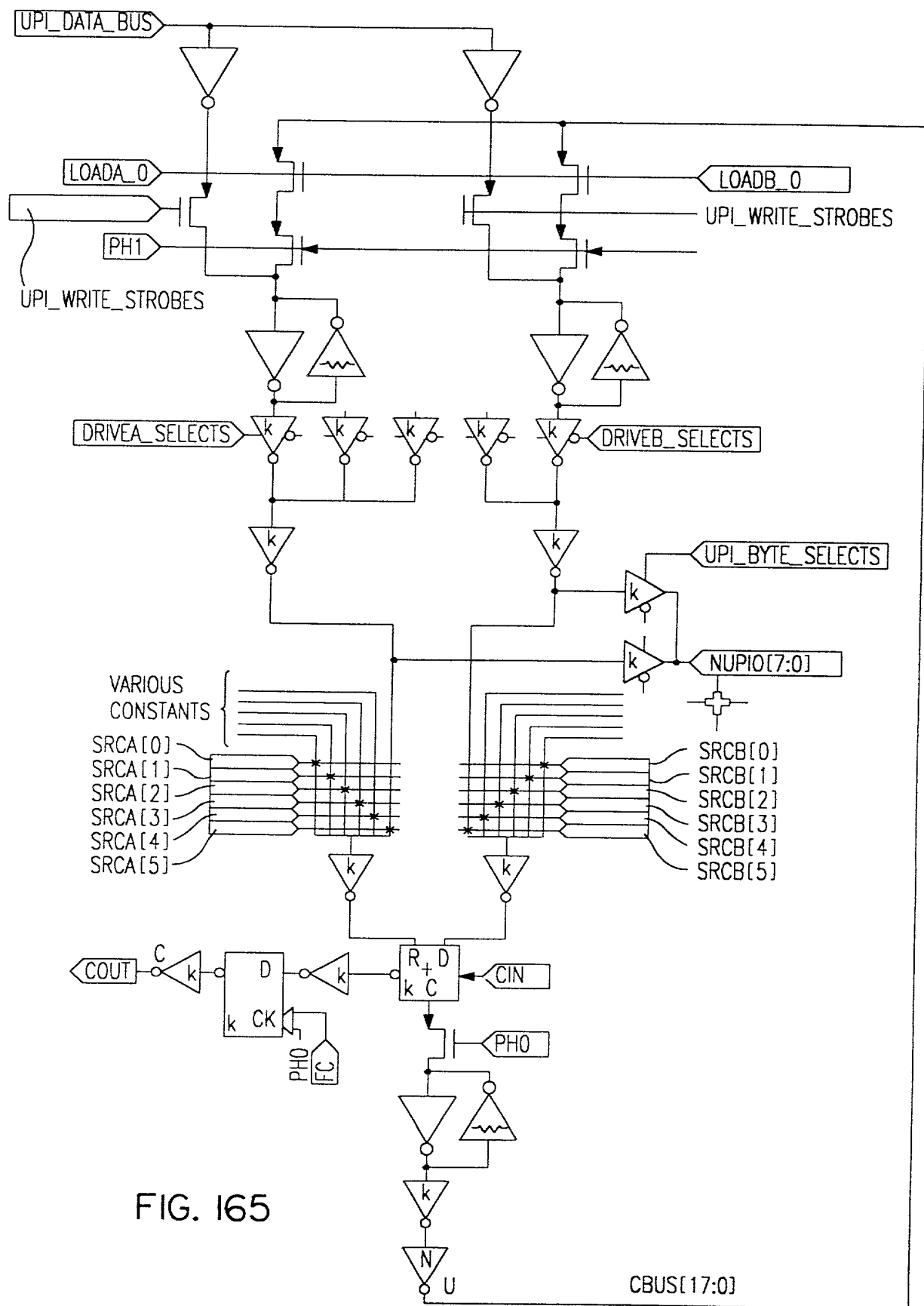
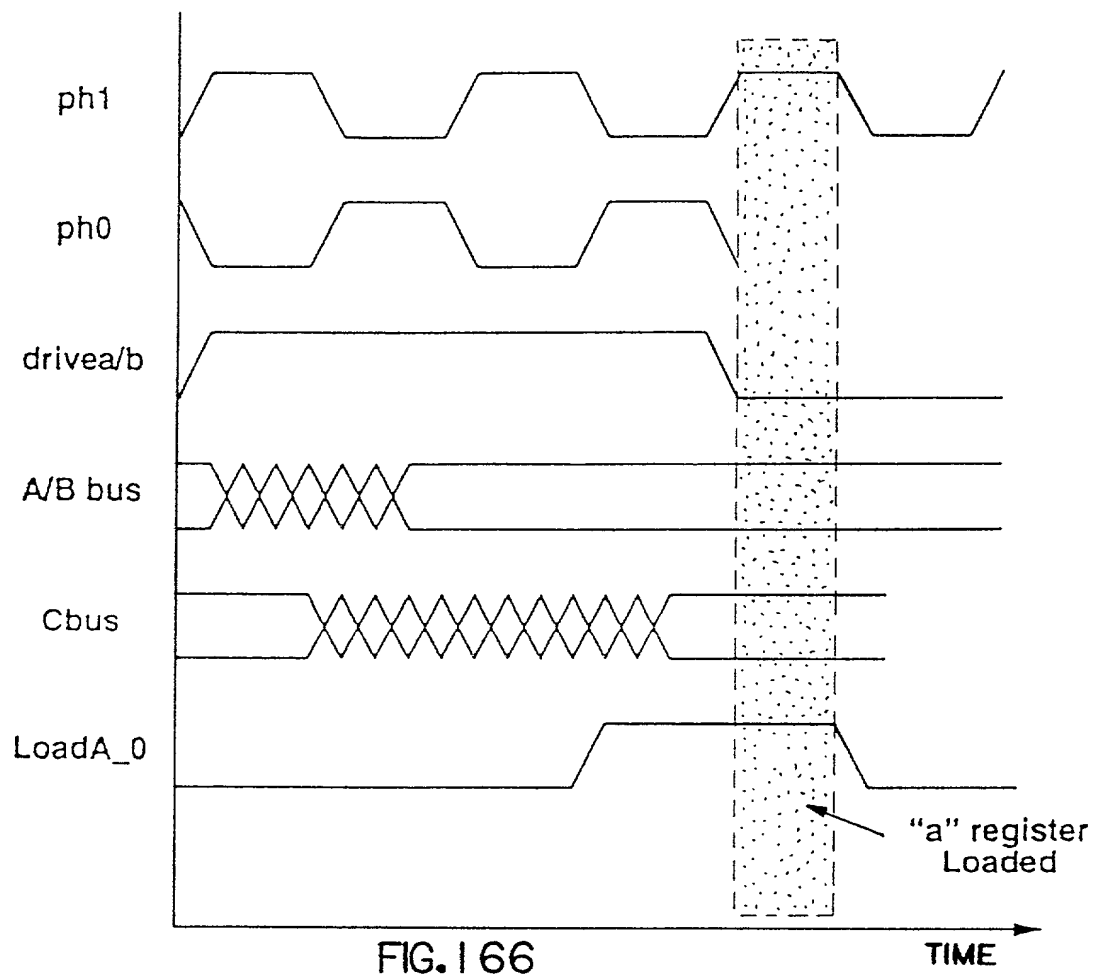


FIG. 165

097644-030304



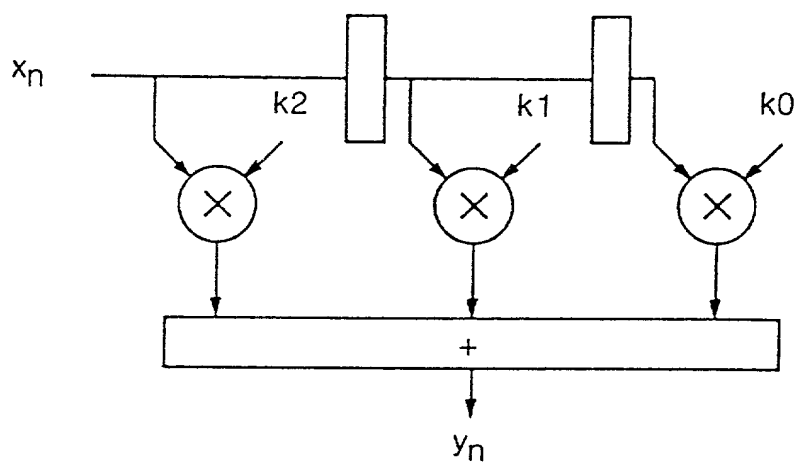


FIG. 167

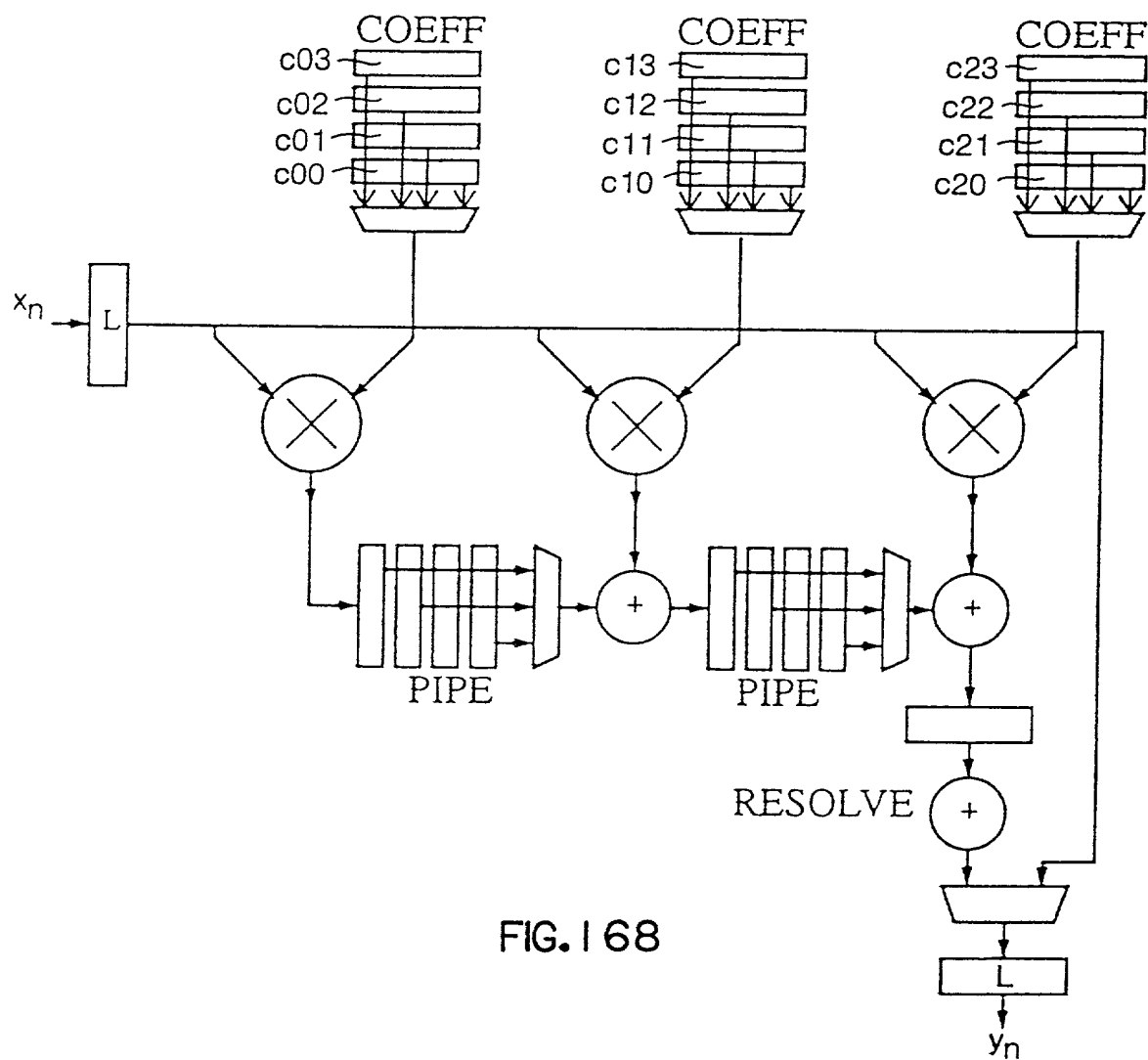


FIG. 168

FIG. 169